

**SERVICING & STORMWATER MANAGEMENT
IMPLEMENTATION REPORT**

LORA BAY BLOCK 39

**1382491 ONTARIO LTD. &
BLEVINS DEVELOPMENTS (COVE) LTD.
TOWN OF THE BLUE MOUNTAINS**

PREPARED BY:

**C.F. CROZIER & ASSOCIATES INC.
40 HURON STREET, SUITE 301
COLLINGWOOD, ONTARIO
L9Y 4R3**

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Revision Number	Date	Comments
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1.0 Introduction and Background

C.F. Crozier & Associates Inc. ("Crozier") was retained by 1382491 Ontario Ltd. & Blevins Developments (Cove) Ltd. ("Owner") to provide engineering services for the detailed design of the site servicing and stormwater management systems of the Lora Bay Block 39 ("Site"), within the Lora Bay Phase 4 development, in the Town of The Blue Mountains ("TOBM"). The 1.40 hectare (3.46 acre) property is bounded by the Lora Bay Golf Club course lands to the north, east, and west and Lora Bay Phase 4 internal Roadway to the south.

The Servicing and Stormwater Management for the development will follow the recommendations provided in the Servicing and Stormwater Implementation Report (April 2020) completed for the overall Lora Bay Phase 4 development, which included the Site. This report has been prepared to provide details associated with the detailed site servicing and stormwater designs for the proposed development. Contained within this report is a review of the following:

1. Project background information
2. Description of the existing site conditions
3. Discussion of the existing and proposed systems:
 - a) Road networks
 - b) Sanitary sewage collection and conveyance
 - c) Potable water distribution and fire protection
 - d) Stormwater management controls
 - e) Sediment and erosion controls
 - f) Utility plants
4. Conclusions

The Site is located within the boundaries of the Lora Bay development area and was previously included as a developable block as part of the Master Development Agreement (October 17, 2005). The Site continues civil servicing previously completed in 2020 for Lora Bay Phase 4, which included single family units. The Site is legally described as Part of Blocks 1, Registered Plan 16M-8 within the Town of The Blue Mountains, County of Grey.

In preparing this report our office reviewed the following documentation:

1. "Geotechnical Investigation Proposed Lora Bay Development Highway 26 and 10th Concession Town of The Blue Mountains, Ontario" prepared by Terraprobe dated April 2004.
2. "Stormwater Management for Raven Golf at Lora Bay" prepared by Henderson, Paddon & Associates dated June 2004.
3. "Master Development Agreement" executed by TOBM dated March 2005.
4. "Lora Bay Corporation Servicing Report for Phase 3 Residential Development, West of Roundabout and Adjacent to Sunset Blvd." prepared by Henderson, Paddon & Associates dated February 2007.
5. "Lora Bay – Phase 3 Water Distribution Report" prepared by Henderson, Paddon & Associates dated October 2007.
6. "Lora Bay Phase 3 Accepted for Construction Drawings" prepared by Henderson, Paddon & Associates dated March 2008.

7. "Stormwater Management & Functional Servicing Report – Lora Bay Phase 4" prepared by CF Crozier & Associates Inc. dated August 2018.
8. "Speed Review Memo – Lora Bay Development" prepared by CF Crozier & Associates Inc. dated February 2019.
9. "Lora Bay Drainage Peer Review Summary Report" prepared by Tatham Engineering Limited dated July 2019.
10. "Water Distribution System – Modelling and Sizing Review, Lora Bay Phase 4 Residential Development" prepared by CF Crozier & Associates Inc. dated January 2020.
11. "Servicing & Stormwater Management Report – Addendum No. 1, Lora Bay Phase 4" prepared by CF Crozier & Associates Inc. dated April 2020.
12. "2020 Year End Water & Wastewater Capacity Assessment – Staff Report" prepared by TOBM June 21, 2021; and,
13. "Geotechnical Investigation – Proposed Townhouses, Block 39 Phase 4 Lora Bay Development" prepared by Peto MacCallum Ltd. dated March 2021.

Construction of the civil infrastructure (inclusive of roads, underground services and utilities) to service individual lots and provide servicing connections to the Site was completed in 2020. Sanitary and storm sewers and watermain stubs were extended and installed beyond at the property line/ROW limit along Street 'A', which is the frontage of the development.

Interceptor ditches were constructed along the west, north and east limits of the Site as part of the 2020 civil servicing works for Lora Bay Phase 4.

2.0 Site Description

2.1 Existing Conditions

The Site was cleared and rough graded in 2020 as part of the earthworks program for the Lora Bay Phase 4 development. Native fill material was cut from other locations of the development and placed within the Site limits. A large boulder stockpile was also located within the Site limits and is a collection of field stone unearthed as part of the earthworks program for Lora Bay Phase 4. Currently, the Site drains from east to west, ranging from 207.5 m to 210.6 m. The Site currently drains overland to the interceptor ditch located along the west, north and east Site limits.

A Site-specific geotechnical investigation was completed in March 2021 by Peto MacCallum Ltd. ("Peto"). The geotechnical program consisted of ten (10) boreholes. Monitoring wells were installed in three (3) of the ten (10) boreholes, located within BH1, BH8 and BH10. Fill material from 2020 civil servicing and earthworks program was placed within the Site limits at depths ranging from 1.4m to 2.1m. Native soil for the Site consists of Gravelly Silty Sand Till and Silty Clay. The Site area was previously stripped of topsoil material during 2020 earthwork operations.

The fill material was previously end dumped during Lora Bay Phase 4 earthworks program in 2020. It was noted that approximately 0.6m to 1.5m of fill material placed was not compacted to engineered fill specifications within roadways and building envelope areas. These areas are proposed to be remediated and reviewed by geotechnical consultant during the Site earthwork program.

Groundwater levels were recorded by Peto on March 16, 2021. Groundwater ranges from 3.3m to 4.2m below existing grade. Groundwater influences on proposed building elevations is not

anticipated within the Site area. The geotechnical investigation has been provided under separate cover.

2.2 Development Proposal

The proposed Site Plan will consist of 33 townhome dwellings, combined with associated amenity areas. Access to the development will be provided from Street 'A', which fronts the development to the south, and was constructed to base course asphalt in 2020. A copy of the Site Plan prepared by Symbolics Architecture + Design Inc. (dated June 25, 2021) is included in the Figures section.

The Site Plan also consists of a 10m servicing easement along the entire south property line of the Site. Retaining walls are proposed along the west, north and portions of the Site limits. Internal roadways are proposed to be privately owned and consist of an urban super-elevated 6.5m to 7.5m asphalt platform.

3.0 Road Network

3.1 Existing Road Network

Currently there is no existing roadway within the Site limits.

Street 'A' along the frontage of the Site was constructed to an urban cross section, including curb and gutter along the edges of the pavement and a storm sewer system. It consists of an 8.5 m paved roadway surface within a 20 m wide right-of-way (ROW) limit. Street 'A' has been constructed to base course asphalt and connects to West Ridge Drive at two (2) locations.

Currently the Site can be accessed via Street 'A'.

3.2 Proposed Road Network

The Site roadway is proposed to be a private roadway and to be constructed to an urban super-elevated cross section, including concrete curb and gutter, 6.5m to 7.5m wide asphalt platform, 1.5m wide sidewalk and a storm sewer system to collect and convey minor storm events. Approximately 350m of internal roadway is proposed to be constructed within the Site limits, including associated parking stalls for guest parking purposes. A 16.5m to 17.5m servicing corridor is proposed for the roadway, which will contain sewers, water and utilities systems required to service the proposed development.

Access to the Site will occur from Street 'A'. The proposed Site Plan includes four (4) lengths of roadway to access proposed units. One (1) connection to Street 'A' is noted on the proposed Site Plan.

Drainage of the roadways will occur via a local storm sewer system and overland flow during minor and major (>5 year) storm events, respectively. Detailed roadway and Site grading was completed considering tie in elevations along property limits, roadway connection points and proposed sag/low points for the Site for stormwater management purposes. A design low point along internal Street 'D', immediately east of Block 6, is proposed in the roadway design to provide an outlet to accommodate overland flow from the Site. Refer to Dwg C102 regarding proposed Site grading.

4.0 Potable Water Servicing

4.1 Existing Water Distribution Network

Currently there is a 300mm dia. stub located along the frontage of the development, connecting into the Street 'A' 300mm dia. watermain.

A 300mm dia. public watermain was installed along Street 'A' in 2020 as part of the Lora Bay Phase 4 civil servicing works.

As part of the detailed design works for Lora Bay Phase 4, a water distribution model was completed by our office to assess available pressures and flow rates, including the Site. Domestic demands and proposed fire flows were provided to the TOBM per MECP water design guidelines and Fire Underwriter Survey (1999) as part of this work. In February 2019, J.L. Richards & Associates Limited (J.L. Richards) completed watermain modelling up to the west terminus of West Ridge Drive Phase 3, and a copy of their report has been included in Appendix A. At the Phase 3 Site limits, approximately 109 L/s of fire flow exists for the current operating conditions of the municipal water distribution system in Lora Bay.

Fire flows for the single-family dwellings and proposed building within Block 39 (assumed three-storey midrise buildings in 2020) were provided to the TOBM based on the short method calculation per the FUS Note J and Ontario Building Code (OBC), respectively. Boundary conditions for Lora Bay Phase 4 at the Phase 3 West Ridge Drive limits were provided to our office from the TOBM water distribution model, based on the domestic and fire flows provided. Refer to Appendix A regarding excerpts from FUS, fire flow calculations and boundary conditions considered for the water distribution model. Refer to Lora Bay Phase 4 Water Modelling Memo (January, 2020) for further clarification on water distribution results.

Overall, the entire Lora Bay Phase 4 development is serviced by a 300mm dia. public watermain, which currently extends to the Site limits. The 300mm dia. watermain was required to maintain pressures and demand throughout the Lora Bay Phase 4 development.

Currently, a hydrant is located within the Site, along the frontage at the proposed entrance location. Refer to Dwg C106 regarding current watermain connection.

Per the TOBM's June 21, 2021 Staff Report, the Thornbury WTP is currently operating under 80% of its firm water supply availability based on maximum daily demand.

4.2 Proposed Water Servicing Strategy

The proposed Site water distribution system is to be publicly owned and operated. The public watermain system will consist of a connection to the 300mm dia. PVC DR18 watermain stub, located along the frontage of the Site. The Site watermain will extend to the dead-end locations of the Site and will be capped and braced at these locations. The Site watermain will follow the proposed alignment of the roadway and will be located along the edge of pavement. Refer to Dwg C106 for details regarding watermain alignment within the Site.

Fire flow calculations required for the Site was based on FUS standards. The architectural plans provide for a fire wall with a 2-hour rating between units. Therefore, the middle unit within Block 1 was utilized as the worst case scenario for fire flow calculation purposes. The proposed fire flow calculated was 83.3 L/s per FUS standards. Refer to Appendix B for supplemental calculations.

The current water model for Lora Bay Phase 4 was utilized and extended into the Site to confirm available pressures and flows during domestic and fire flow scenarios. Fire flow ranges from 102.5 L/s to 107 L/s were found within the Site limits. Refer to Appendix B for domestic demand and fire flow demand modelling results and Figure 1 for model schematic.

A 200mm dia. PVC DR18 watermain will be required throughout the Site in order to provide sufficient domestic and fire flow demands to all areas within the Site. Pressures per Town Standards were maintained throughout the Site during domestic and fire flow scenarios. Refer to Appendix B regarding domestic demand and fire flow results for the development.

Individual 20mm dia. Type "K" Copper water services or 25mm dia. Polyethylene water services will be installed for every single residential unit within the Site as per TOBM Standards. Hydrants have been placed and will be installed as per TOBM Standards. Refer to Dwg C106 regarding the alignment of the proposed internal watermains and locations of services and hydrants.

5.0 Sanitary Servicing

5.1 Existing Sanitary Sewage System

A sanitary sewer was installed along the frontage of the development within Street 'A' roadway in 2020 as part of the Lora Bay Phase 4 civil servicing works. This sanitary sewer was a continuation of the Lora Bay Phase 3 sanitary sewer system, installed along West Ridge Drive in 2008. Street 'A' sanitary sewer consists of a 200mm dia. sewer and connects to a 250mm dia. gravity sewer along West Ridge Drive. This sanitary sewer is aligned along the centreline of Street 'A'. A 200mm dia. sanitary stub was installed to the limit of the Site in 2020.

Original sizing of the sanitary sewers within the Lora Bay development area was completed by H & P as part of the Phase 3 Servicing Report (February 2007). Future development lands along West Ridge Drive and south of Georgian Trail were included as part of the overall Lora Bay sanitary sewer design and sizing. The future development allowance upstream of the Lora Bay Phase 3 West Ridge Drive 250mm dia. sanitary stub is equivalent to a population of 1358 people per H & P Phase 3 Servicing Report (February 2007). Refer to Appendix C for copies of the H & P sanitary sewer design sheets along West Ridge Drive, McCallum Crescent and Landry Lane.

Sewage from Street 'A' and West Ridge Drive within the Lora Bay Phase 4 development drains via gravity to an 11 m wide servicing easement located north of the east Landry Lane/West Ridge Drive intersection within Lora Bay Phase 3 development. Sewage is conveyed north via a 250mm dia. gravity sewer along the 11th Concession ROW allowance to Sunset Boulevard, and then east along Sunset Boulevard via a 375mm dia. trunk gravity sanitary sewer to the pumping station at the corner of Lora Bay Drive and Sunset Boulevard. Sewage is ultimately conveyed via forcemain from this location to the Thornbury WWTP. All of this infrastructure is owned and maintained by the TOBM.

Per the TOBM's June 21, 2021 Staff Report, the Thornbury WWTP is currently operating at 76% of its current built capacity based on 5-year rolling average daily flow.

5.2 Proposed Sanitary Servicing Strategy

The Site was included as part of the original sanitary drainage areas contributing to the Lora Bay Phase 4 and downstream existing Phase 3 sanitary system. The available capacity at the Site sanitary stub, located along the frontage of the Site, was calculated to be 23.19 L/s. The original sanitary sewer design for Lora Bay Phase 4 development envisioned up to 41 units contributing to the sanitary sewer, with an original peak flow of 3.47 L/s. The current Site Plan provides a unit count of 33 units resulting in a peak flow of 2.14 L/s. Therefore, the downstream system will not be

negatively impacted by the proposed development due to decrease in unit count. Refer to Appendix D for original and proposed sanitary design sheets for the Site.

The proposed internal sanitary sewer system for the Site will consist of a privately owned 200mm dia. PVC SDR 35 gravity sanitary sewers with all associated appurtenances discharging to the existing sanitary stub located along the frontage of the Site. This stub currently connects to the sanitary sewer along Street 'A' via SAN MH13. Refer to Dwg C104 for further details. All proposed sanitary sewers for the Site will follow the alignment of the centreline of the proposed internal roadway as shown in the typical cross section. Sanitary sewers at dead ends within the development will be terminated with sanitary maintenance holes.

Individual 125mm dia. PVC SDR 28 gravity sanitary services with 100mm dia. reducer and all associated appurtenances will be installed for each unit as per TOBM Standards. Refer to Dwg C104 for the alignment of the proposed sanitary sewers and locations of proposed sanitary services.

The design and installation of the internal Site sewers will be subject to Ontario Building Code standards and will require a Plumbing Permit from the TOBM.

6.0 Stormwater Management & Site Drainage

Stormwater management for the Site will comply with the policies and standards of various agencies including the TOBM, Grey Sauble Conservation Authority, and Ministry of the Environment, Conservation & Parks (MECP).

The stormwater management criteria that will be met within the proposed Site development are listed below:

- Water Quality Control
 - "Enhanced Protection" given Georgian Bay as the ultimate receiver
- Water Quantity / Peak Flow Control
 - No impacts to the downstream drainage network

The basis for the stormwater management strategy for the Site was identified by H & P in the reports listed in Section 2.0. These historical reports and modelling completed by H & P were recently updated by Tatham Engineering Limited ("Tatham") in July, 2019; however, the proposed SWM strategy for the Site was not provided via Tatham's SWM Report. Therefore, as part of the Lora Bay Phase 4 design works, Crozier maintained the H & P recommendations for SWM strategy. The Site SWM works will build on and confirm the recommendations provided in Crozier's Servicing and Stormwater Management report (April 2020) for Lora Bay Phase 4 inclusive of the current Site.

6.1 Existing Drainage Conditions

The Site was cleared and rough graded as part of the Lora Bay Phase 4 civil servicing works. Currently, the Site drains from east to west via overland sheet flow.

A V-Notch drainage ditch was constructed along the west, north and east property lines of the Site to capture and convey external drainage around the development, eventually discharging to the Regional SWM facility ("SWM Pond No. 1"), located between Hole 2 and 3 within the Lora Bay Golf Club lands. The ditch was constructed within the Lora Bay Golf Club lands and sizing of the ditch was completed as part of the Lora Bay Phase 4 design works. In the Ultimate buildout conditions for the Lora Bay area, the ditch was sized to convey a peak flow of 2.05 m³/s during the 100-year SCS storm event with 0.3m freeboard above the high-water level. The ditch was designed with 1.0m to 1.1m depth with 3:1 side slopes. Refer to Appendix E for original ditch modelling and sizing.

A 375mm dia. storm sewer stub was installed along the frontage of the Site. This stub was sized to convey the minor (up to and including 5-year) storm event from a majority of the Site. Site area draining to this stub will eventually discharge to the Block 41 drainage ditch, located downstream of the low point within the Lora Bay Phase 4 site limits along West Ridge Drive. Refer to Appendix E for original storm design sheet for the storm stub and the Lora Bay Phase 4 development.

Stormwater runoff from the Site currently drains uncontrolled to the SWM Pond No. 1. Refer to Figure 2 & 3 regarding location of interceptor ditch and SWM Pond No. 1.

6.2 Proposed Drainage Conditions & External Drainage Features

A majority of the drainage works required to convey stormwater runoff from the Lora Bay Phase 4 development (including the Site) was completed as part of the civil servicing works in 2020. Our Site will utilize these drainage systems as part of the Site SWM strategy, which are noted as follows:

1. An interceptor ditch, which was constructed along the Site west, north and east property limits, currently draining west to east. This interceptor ditch was sized to convey and contain the 100-year SCS peak flow rate (Regulatory Storm) in the Ultimate Conditions. Refer to Appendix E for original ditch modelling results.
2. A 375mm dia. Storm Stub was provided for the Site and sized accordingly per TOBM standards to convey 5-year storm event from a majority of the Site.

The following SWM strategies are proposed for the Site:

1. Minor (up to and including 5-year) storm events will be captured and conveyed to two (2) outlets via the proposed grading for the Site, which includes the following:
 - a. Storm sewer system connecting to the 375mm dia. storm stub located along the frontage of the Site. Approximately 0.82 ha of area from the Site will drain to this storm stub, discharging into the Street 'A' existing storm sewer system.
 - b. Storm sewer system outletting directly to the east portion of the interceptor ditch (east of townhome Block 6). Approximately 0.19 ha of area from the Site will drain to this storm system.
2. Major (>5-year) storm events will drain via overland paths (roadways and swales) to the east portion of the Site to a design low point. An overland spillway is proposed along internal Street 'D' (east of townhome Block 6) at the low point, discharging into the interceptor ditch. Approximately 1.01 ha of area from the Site will drain to this low point/spillway during major storm events. Remainder of Site area will drain via overland sheet flow and swales directly to the interceptor ditch.
3. No quantity/quality control is proposed for the Site, and follows recommendations provided for the overall Lora Bay Phase 4 SWM strategy. Quantity and quality controls are to be provided by the existing SWM Pond No. 1.

Storm sewer sizing was completed for the Site per TOBM standards for the 5-year storm event. Refer to Appendix F for the Site storm sewer design sheet and proposed sewer sizing.

Changes in drainage area and drainage directions are anticipated with the proposed Site Plan in comparison to the previous assumptions noted for the Site. Sections 6.2.1 to 6.2.4 assesses downstream features capacity of the following drainage features:

1. Interceptor ditch downstream of the Site.
2. 900mm dia. culvert crossing located east of Lot 2 within the Lora Bay Phase 4 development.
3. Design sag/low point along West Ridge Drive within the Lora Bay Phase 4 development.
4. Block 41 overland channel downstream of the Lora Bay Phase 4 design sag/low point along West Ridge Drive; and,
5. Golf Course ditch and culverts downstream of Block 41 overland channel

6.2.1 Proposed Drainage – Interceptor Ditch Capacity Assessment

In the H & P Phase 3 Servicing Report (February 2007), approximately 107 ha of external undeveloped drainage area was proposed to drain to the West Ridge Drive sewer system. The Site (as part of Phase 4 in undeveloped conditions) was included as part of this area to drain to the West Ridge Drive storm sewer. In H & P Master SWM Report (June 2004), Phase 4 (and the Site) was proposed to drain along West Ridge Drive, eventually discharging to SWM Pond No. 1. In Crozier's FSR & SWM Report (August 2018), external area draining through the north portion of Lora Bay Phase 4 was proposed to be captured and conveyed via storm sewers down West Ridge Drive to SWM Pond No. 1. However, due to the design sag/low point for Phase 4 and proposed configuration of the storm sewer system along West Ridge Drive (reduced storm sewer cover) storm sewer capacity for Lora Bay Phase 4 was limited to the following areas:

- Lora Bay Phase 4 development (including the Site);
- Portion of external area south of the Site; and,
- Proposed surface runoff draining to Block 40.

Previously, external area draining to the south property line of Lora Bay Phase 4 (Lots 12 to 19 and Site) and backyard drainage from the Lora Bay Phase 4 development (1.13 ha), was proposed to be captured and conveyed via an external ditch (interceptor ditch), located along the rear of Lots 1 to 19 and Site. This ditch was sized for the highest Ultimate Condition peak flow rate. The Ultimate Conditions assumed the following:

1. 30% of Area 202D (202D-GC, 4.59 ha) in the post-development will drain through the golf course to the North Site Ditch.
2. All of Area 201L (5.67 ha) in the post-development will drain to the North Site Ditch.
3. Drainage areas located south of Area 201L, 202D-GC, 202D-WRD and 202B are assumed to be directed away from the North Site Ditch via West Ridge Drive.

The approved OTT HYMO model from the TOBM, completed by Tatham in 2019, was obtained as part of the Lora Bay Phase 4 design works to complete updated modelling for the Ultimate Conditions. Rainfall files obtained from Tatham were used to simulate design peak flow rate for the interceptor ditch. The 2-year up to and including the 100-year CHI and SCS and Regional (Timmins) storm events were used. Refer to Table 1 regarding peak flow rates for each storm event used.

Table 1: Original Surface Runoff Peak Flow Rates for the Interceptor Ditch – Lora Bay Phase 4 (ADD HYD 812 – Ultimate Conditions)

Storm Event	North Site Drainage Ditch Peak Flow Rates (m ³ /s)	
	CHI Storm	SCS Storm
2-year	0.56	0.69
5-year	0.85	1.03
10-year	-	1.25
25-year	1.34	1.60
50-year	-	1.85
100-year	1.66	2.05
Regional (Timmins)	1.22	

The 100-year SCS storm event was selected to size the interceptor ditch per the Ultimate Conditions modelling. A V-Notch shape ditch combined with 3:1 side slopes was selected to be constructed, with depth varying from 1.0m to 1.1m depending on longitudinal slope (0.5% to 1.3% range). A Freeboard of 0.3m was also accounted for in the original design. Refer to Appendix E regarding original ditch cross sections and modelling results.

This interceptor ditch was constructed in spring/summer 2020 as part of the Lora Bay Phase 4 civil servicing works.

Per the current 2021 Site Plan, drainage areas impacting the interceptor ditch were updated to represent proposed Site drainage directions. The proposed grading for the Site results in the entirety of the Site (1.40 ha) to drain and discharge to the interceptor ditch during major (>5-year) storm events. The OTT HYMO model for the Ultimate Conditions was updated per the drainage area/direction changes and the peak flow rates were simulated as shown in Table 2.

Table 2: Updated Surface Runoff Peak Flow Rates for the Interceptor Ditch – Updated Site Conditions (ADD HYD 812 – Ultimate Conditions)

Storm Event	North Site Drainage Ditch Peak Flow Rates (m ³ /s)	
	CHI Storm	SCS Storm
2-year	0.64	0.75
5-year	0.97	1.16
10-year	-	1.36
25-year	1.45	1.74
50-year	-	1.96
100-year	1.81	2.22
Regional (Timmins)	1.28	

Refer to Figures 1 & 2 regarding changes to Site drainage areas.

Based on the updated modelling, peak flow rates increased for all storm events impacting the interceptor ditch. The original high-water level (HWL) for the interceptor ditch was increased by 0.03m, from 0.80m to 0.83m depth, based on the 100-year SCS storm event (Regulatory event). This

minimal increase in HWL will not have a negative impact on the interceptor ditch capacity. Refer to Appendix F for modelling updates.

6.2.2 Proposed Drainage – 900mm dia. Culvert Capacity Assessment

A maintenance access connection from Block 41 within the Lora Bay Phase 4 development to the golf cart path located along Hole 4 was constructed as part of the Lora Bay Phase 4 civil servicing works in 2020. A 900mm dia. HDPE culvert was installed at this location to convey up to and including the 25-year SCS storm event per Table 1. Storm events greater than the 25-year SCS storm will be contained and conveyed overtop of the maintenance access via design sag. It should be noted that tailwater effects on the design of the culvert and sag were accounted for and based on the combined flow rates at the junction of Block 41 and the interceptor ditch per Ultimate Conditions. Refer to Appendix E regarding previous modelling of culvert crossing.

Based on the updated peak flow rates per Table 2, the 25-year SCS storm peak flow rate was updated in the ditch and culvert modelling. The existing 900mm dia. HDPE culvert will provide capacity for the 25-year SCS storm event with the minimal increase in peak flow rate. Therefore, 25-year SCS storm event will be conveyed under this maintenance pathway. Refer to Appendix F for updated ditch and culvert modelling.

Storm events greater than the 25-year SCS storm will overtop the 900mm dia. culvert. A design sag was proposed at this location to convey additional runoff overtop of the crossing. Overtopping modelling was updated as part of the Site design works. The updated overtopping limits are contained within the design sag, therefore, additional modifications to this crossing location are not required. Refer to Appendix E & Appendix F for original and updated modelling, respectively.

6.2.3 West Ridge Drive Roadway Sag/Low Point and Block 41 Drainage Ditch

To eliminate impacts occurring along existing West Ridge Drive within the Lora Bay Phase 3, a roadway sag/low point located along West Ridge Drive within the Lora Bay Phase 4 limits was designed and constructed. The sag/low point was designed to achieve the following:

1. Provide overland flow spillway along West Ridge Drive from the Lora Bay Phase 4 development in the major (>5-year) storm events.
2. Provide overtopping for proposed drainage along Block 40 during major (>25-year SCS) storm events.

Peak flow rates were simulated at the sag/low point along West Ridge Drive in the Ultimate Conditions as part of the Lora Bay Phase 4 design, and the results are shown in Table 3 & 4.

Table 3: Original Surface Runoff Peak Flow Rates at Lora Bay Phase 4 West Ridge Drive Sag/Low Point (Ultimate Conditions)

Storm Event	Peak Flow Rates at West Ridge Drive Site Sag/Low Point (m ³ /s)	
	CHI Storm	SCS Storm
2-year	1.25	1.38
5-year	1.79	2.04
10-year	-	2.49
25-year	2.60	3.23
50-year	-	3.85
100-year	3.48	4.34
Regional (Timmins)	1.98	

Table 4: Original Major Storm Overland Peak Flow Rates at Lora Bay Phase 4 West Ridge Drive Sag/Low Point (Ultimate Conditions)

Storm Event	Peak Overland Flow Rates at Sag/Low Point (m ³ /s) ^{1,2,3}	
	CHI Storm	SCS Storm
2-year	-	-
5-year	-	-
10-year	-	0.20
25-year	0.23	0.46
50-year	-	1.08
100-year	0.76	1.57
Regional (Timmins)	-	

1. Overland flow from Site determined by Storm Event Peak Flow - 5-year SCS Storm Peak Flow, if product less or equal to zero (0), no overland flow contributing to sag/low point.
2. Overtopping flow from Block 40 determined by Storm Event Peak Flow - 25-year SCS Storm Peak Flow, if product less or equal to zero (0), no overtopping flow contributing to sag/low point.
3. Sum of the overland flow from the Site and the overtopping flow from Block 40.

The design sag/low point in the roadway along West Ridge Drive included as part of the Lora Bay Phase 4 design is approximately 50m in length. The maximum overtopping depth that was provided by this sag/low point is 0.14m, with the elevation of the low point being at 206.65m. Modelling of the low point and potential overtopping depth was provided as part of the Lora Bay Phase 4 design works using Flowmaster for all overland storm events per Table 4. The highest overland peak flow rate simulated from the Ultimate Conditions model was the 100-year SCS storm event. Refer to Appendix E for original modelling.

Modelling for this sag/low point was updated based on the changes to the drainage area for the Site. Peak flow rates were simulated at the sag/low point along West Ridge Drive of Lora Bay Phase 4 in the Ultimate Conditions, and the results are shown in Table 5 & 6.

Table 5: Updated Surface Runoff Peak Flow Rates at Lora Bay Phase 4 West Ridge Drive Sag/Low Point (Ultimate Conditions)

Storm Event	Peak Flow Rates at West Ridge Drive Site Sag/Low Point (m ³ /s)	
	CHI Storm	SCS Storm
2-year	1.19	1.29
5-year	1.68	1.91
10-year	-	2.34
25-year	2.45	3.04
50-year	-	3.61
100-year	3.26	4.07
Regional (Timmins)	1.88	

Table 6: Updated Major Storm Overland Peak Flow Rates at Lora Bay Phase 4 West Ridge Drive Sag/Low Point (Ultimate Conditions)

Storm Event	Peak Overland Flow Rates at Sag/Low Point (m ³ /s) ^{1,2,3}	
	CHI Storm	SCS Storm
2-year	-	-
5-year	-	-
10-year	-	0.05
25-year	-	0.27
50-year	-	0.84
100-year	0.49	1.30
Regional (Timmins)	-	

1. Overland flow from Site determined by Storm Event Peak Flow - 5-year SCS Storm Peak Flow, if product less or equal to zero (0), no overland flow contributing to sag/low point.
2. Overtopping flow from Block 40 determined by Storm Event Peak Flow - 25-year SCS Storm Peak Flow, if product less or equal to zero (0), no overtopping flow contributing to sag/low point.
3. Sum of the overland flow from the Site and the overtopping flow from Block 40.

The 100-year SCS storm event was maintained as the design storm for the sag/low point. The 100-year SCS storm event was reduced from the original design peak flow rate utilized during the Lora Bay Phase 4 design. No changes to the overtopping depth and velocity was noted with the updated modelling, maintaining an overtopping depth of 0.06m, velocity of 0.39 m/s and product of depth and velocity of 0.02 m²/s. The overtopping conforms to current GSCA standards for Safe Access conditions. Refer to Appendix F for updated overtopping modelling analysis and excerpts from GSCA Policies.

Block 41 drainage ditch was designed and constructed to convey the 100-year SCS storm event peak flow rate in the Ultimate Conditions per Table 3. The sizing and construction of this drainage ditch was completed as part of the Lora Bay Phase 4 civil servicing works. The ditch within Block 41 was designed with a trapezoidal channel having a bottom width of 2.2m to 3.0m. The ditch consists of 2:1 side slopes at a depth of 0.70m to 1.1m to provide 0.30m freeboard above the high-water level. The longitudinal slope of the ditch was designed at 4.7%. Refer to Appendix E for original ditch cross sections and modelling.

Based on updated peak flow rates noted in Table 5, the 100-year SCS storm event still governs as the regulatory storm event for capacity assessment of this drainage feature. The peak flow rate of the

regulatory storm event was decreased from the original peak flow rate anticipated as noted in Table 3. Therefore, the ditch within Block 41 is not negatively impacted by changes to the Site drainage area. Refer to Appendix F for updated ditch modelling.

6.2.4 Golf Course Ditch and Culvert Design

The Golf Course ditch was constructed in 2020 along the north property line of West Ridge Drive lots from Block 41 to the overland flow channel of Lora Bay Phase 3, which is located north of the West Ridge Drive low point within Lora Bay Phase 3. Surface runoff from Block 41, the interceptor ditch and drainage area along Hole 4 and rear lots of West Ridge Drive units in Lora Bay Phase 3 was accounted for in the Ultimate Conditions.

The Golf Course ditch within Lora Bay Golf Club lands was sized to convey the 100-year SCS storm event (Regulatory storm) peak flow, which was originally modelled to be 6.05 m³/s at ADD HYD 813 in the OTT HYMO model. This ditch was constructed as a V-Notch channel with 3:1 side slopes at a depth of 1.5m (min.) to provide 0.30m freeboard above the high-water level. The lowest longitudinal slope of the ditch was designed as 0.5%. Refer to Appendix E for original ditch cross section and modelling.

A culvert crossing was designed as part of the Golf Course ditch works at the existing municipal trail. The trail connects to West Ridge Drive within Lora Bay Phase 3 and traverses north between Lot 12 and 13 (135 and 137 West Ridge Drive). A triple 825mm dia. CSP culvert crossing with a sag was designed and constructed at this location to convey up to and including the 10-year SCS storm event (3.51 m³/s) under the municipal trail. Storm events greater than the 10-year SCS storm were to be contained and conveyed overtop of the municipal trail via a design sag. It should be noted that tailwater effects on the design of the culvert and sag were accounted for and based on the combined flow rates at the junction of Golf Course ditch and the overland channel from Lora Bay Phase 3 per Ultimate Conditions. Refer to Appendix E regarding original modelling of culvert crossing.

Updated modelling was completed to assess impacts of the Site development on the Golf Course ditch and culvert capacity. All storms were noted to be reduced, save for minimal increases in the 2 & 5-year CHI storms, with the updated modelling, and the comparison is shown in Table 7.

Table 7: Comparison of Surface Runoff Peak Flow Rates for Golf Course Ditch & Culvert (ADD HYD 813 – Ultimate Conditions)

Storm Event	Golf Course Ditch Peak Flow Rates (m ³ /s)			
	CHI Storm (Original)	CHI Storm (Updated)	SCS Storm (Original)	SCS Storm (Updated)
2-year	1.46	1.49	1.95	1.91
5-year	2.26	2.30	2.88	2.86
10-year	-	-	3.51	3.45
25-year	3.33	3.28	4.57	4.48
50-year	-	-	5.42	5.21
100-year	4.60	4.48	6.05	5.90
Regional (Timmins)	-	-	3.55	3.50

Negative impacts on the previously installed culverts and constructed Golf Course ditch is not anticipated with the Site development. Refer to Appendix F for updated modelling.

6.3 Stormwater Quality Control

Water quality controls per the MECP's guidelines for the Lora Bay development will be provided via the following features:

1. Surface runoff from the Site and south of the Site will be pre-treated via ditches with enhanced vegetation along their longitudinal profile. The external ditches will outlet to SWM Pond No. 1.
2. All areas draining to West Ridge Drive and/or the Site ditches will be conveyed and treated by the SWM Pond No. 1 as proposed by H & P in the 2004 Raven Golf Course SWM Report.

7.0 Sediment and Erosion Controls

Erosion and sediment controls will be implemented prior to construction. The controls will consist of a combination of features, which have been identified on Dwg C107.

- Silt Fencing

Silt fence will be installed where required to intercept sheet flow. Silt fence is typically specified around the perimeter of the site, and additional silt fencing is installed based on field decisions prior to, during and following construction.

- Check Dams

Check dams will be installed within external and onsite ditches and overland flow outlets and can be constructed of either straw bales or rock. The check dams are intended to reduce flow velocity thereby reducing the erosion of the outlet channel and also promote settling of sediment from the runoff.

- Mud Mat

Mud mats minimize tracking of material from the site to the surrounding roadways and is constructed of lifts of varying sizes of stone and granular material. All construction traffic for the development must cross over the mat to access the site. The mat will be maintained as required during construction to ensure optimal operating efficiency.

- Silts Sacs

Silt sacs will be installed on all proposed storm catchbasins within the Site post-civil servicing works and existing catchbasins located along West Ridge Drive. Silt sacs will capture sediment entering the roadways during house building construction. Silt sacs will be maintained during the building construction phase by the Contractor/Builder and cleaned out post heavy rainfall/snowmelt events.

- Dust Suppression

During construction, the Contractor will ensure that measures for dust suppression are provided as required, such as the application of water or lime.

The Site will be pre-graded to provide drainage to an appropriate outlet(s) during the civil servicing phase of construction. Tree clearing and rough grading was previously completed as part of the Lora Bay Phase 4 civil servicing works in 2020.

8.0 Utilities

The Site will be serviced with telephone, cable TV, gas, and hydro. All such utilities have been contacted, and each utility has confirmed that there are existing facilities available in the area to service the Site.

Detailed designs of each utility will be provided once received by our office; however, they will follow the proposed corridors as shown in the typical section for the Site on Dwg C108.

9.0 Conclusions

The qualitative and quantitative analysis presented herein provides a comprehensive servicing and stormwater management assessment of the proposed servicing and storm systems for the Site. The following conclusions have been reached.

1. A 6.5m to 7.5m paved super-elevated roadway with a 16.5m to 17.5m servicing corridor is proposed for the internal roadways within the Site. The typical section will consist of an urban cross section consisting of curb and gutter and storm sewer system.
2. A sag/low point along internal Street 'D' has been included in the design to provide an outlet for major storm events, discharging into the existing downstream interceptor ditches. The Site is graded to drain from west to east.
3. A 200mm dia. public watermain will be installed for the entire Site and will provide minimum of 83.3 L/s per FUS calculations. Townhomes have been proposed with 2-hour (min.) fire walls between each unit.
4. A 200mm dia. private sanitary sewer will be installed for the Site and connect to the existing 200mm dia. sanitary stub located along the frontage of the development. This sanitary stub was installed as part of the Lora Bay Phase 4 civil servicing works.
5. Minor (up to and including 5-year) storm events from the Site will drain to two (2) outlets. The western portion of the Site will drain and connect to the existing storm stub located along the front of the development, which was installed as part of the Lora Bay Phase 4 civil servicing works. The eastern portion of the development will drain and discharge to the interceptor ditch previously constructed along the west, north and east boundaries of the Site.
6. All proposed internal storm sewers have been sized appropriately per TOBM Standards and will be privately owned.
7. Major (>5-year) storm events from the Site will drain overland via roadways and swales to the eastern portion of the Site, discharging to the interceptor ditch.
8. Capacity assessment was completed for the interceptor ditch, 900mm dia. culvert, existing sag/low point of West Ridge Drive (Phase 4), Block 41 ditch and Golf Course ditch and culverts located north of Lora Bay Phase 3 lots. Capacity is available for these drainage features and will not be negatively impacted by the proposed development of the Site.
9. Water quality controls for the Site will be provided by proposed ditches and SWM Pond No. 1.
10. Sediment and erosion controls will be provided per TOBM standards. Site will be pre-graded to provide drainage to appropriate outlets during building conditions post civil servicing.

Therefore, we recommend providing acceptance of the proposed servicing and stormwater management strategies noted in this report for the proposed development.

Respectfully submitted,

C.F. CROZIER & ASSOCIATES INC.



Austin Spencer P.Eng.
Project Manager
AJS/dp

C.F. CROZIER & ASSOCIATES INC.



Dan Piggott, P. Eng.
Senior Project Manager

J:\100\183 - Landex Projects\5908-Lora Bay Ph. 4 Blk 39\Reports\First Submission\2021.06.28 Lora Bay Block 39 Servicing & SWM Report (Final).doc

Appendix A

J.L. Richards Water Boundary Conditions
Original Fire Flow Calculations
FUS Excerpts

Austin Spencer

From: Kevin Morris
Sent: February 27, 2019 4:02 PM
To: Austin Spencer; Brady Ellsworth
Subject: FW: 27550-003 TOBM Lora Bay PH 4 - Boundary Conditions
Attachments: Model_Results.pdf; 2019.02.13 Fire Flow (Fire Resistance_Sprinkler).pdf; 2019.02.13 Fire Flow (Entire Building - Midrise).pdf; 2019.02.13 Fire Flow (Fire Resistance between Floors).pdf; FIG 2.pdf; FIG 1.pdf; 2019.02.13 Water Design Flows.pdf

Kevin Morris P.Eng. | Founding Partner
C.F. Crozier & Associates Consulting Engineers
40 Huron Street, Suite 301 | Collingwood, ON L9Y 4R3
cfcrozier.ca | kmorris@cfcrozier.ca
tel: 705.446.3510 | direct: 705.719.3449

From: Brian Worsley <bworsley@thebluemountains.ca>
Sent: Wednesday, February 27, 2019 4:01 PM
To: Kevin Morris <kmorris@cfcrozier.ca>
Subject: FW: 27550-003 TOBM Lora Bay PH 4 - Boundary Conditions

FYI

From: Mark Buchanan <mbuchanan@jlrichards.ca>
Sent: Wednesday, February 27, 2019 3:33 PM
To: Brian Worsley <bworsley@thebluemountains.ca>
Cc: Annie Williams <awilliams@jlrichards.ca>
Subject: 27550-003 TOBM Lora Bay PH 4 - Boundary Conditions

Hello Brian,

The proposed Development ("Lora Bay Phase 4"), located along an extension of West Ridge Drive west of Landry Lane in the Town of the Blue Mountains (Town), was simulated using the Town's current hydraulic water model to determine hydraulic boundary conditions based on theoretical water demands and fire flows provided by the Developer's Engineer (refer to attached). Table 1 summarizes the theoretical water demands that were included in the model at junction node LB-501. Table 2 summarizes the required fire flows for three different fire protection options as calculated by the Developer's Engineer.

Table 1: Theoretical Water Demands

Scenario	Demand (L/s)
Average Day	0.89
Maximum Day	4.36
Peak Hour	6.59

Table 2: Fire Flow Calculations

Option	FUS (L/s)	OBC (L/s)
1	233.3	105
2	166.7	60

The hydraulic boundary conditions have been generated at the requested connection location labelled as junction node LB-501 in the model and are summarized in Table 3 (refer to attached WaterCAD model outputs). The average day and peak hour demand scenarios include the hydropneumatic with all pumps off at the 10th Line Pumping Station. The maximum day plus fire flow results summarized below assume that booster pumps BPS-1, BPS-2, BPS-3, and BPS-4 are operating at the 10th Line Pumping Station with no contribution from the hydropneumatic tank (i.e., BPS-1 to 4 are maintaining pressure and flow). It is anticipated that the maximum available fire flow is limited to 105 L/s based on the 10th Line modelled pumping capacity. From the model, operation of the 10th Line BPS remained on their pump curve but operated at or near the end of their simulated pump curve. It is recommended the Town review and confirm the modelled pump operation.

Table 3: Lora Bay Phase 4 Boundary Conditions

Demand Scenario	Connection 1	
	Junction Node LB-501 (Elev 206.15 m)	
	Pressure (kPa)	HGL (m)
Average Day (0.89 L/s)	535	260.78
Max Day (4.36 L/s) + Fire Flow (60 L/s)	622	269.71
Max Day (4.36 L/s) + Fire Flow (100 L/s)	361	243.07
Max Day (4.36 L/s) + Fire Flow (105 L/s)	324	239.21
Peak Hour (6.59 L/s)	532	260.52

Note that the foregoing model results are for current conditions and are based on computer model simulation. We have not reviewed the adequacy of the domestic demand nor fire flow requirements for the proposed development, which remains the responsibility of the Developer's Engineer.

Disclaimer: The model results are based on current simulated operation of the Town's water distribution system. The computer model simulation is based on the best information available at this time. The operation of the water distribution system can change on a regular basis, resulting in a variation in the boundary conditions. It is further noted that the operational characteristics of the water supply system and physical properties of the watermains can change and/or deteriorate over time. These changes may affect the supply characteristics of the system and the assumptions made in developing the model, which in turn could lead to variations in the simulation results. This should be considered by any third party undertaking simulation of system upgrades.

Please do not hesitate to contact me should you have any questions regarding the foregoing.

Regards,

Mark Buchanan, P.Eng.
Associate
Senior Civil Engineer













J.L. Richards & Associates Limited
700 - 1565 Carling Avenue, Ottawa, ON K1Z 8R1
Tel: 613-728-3571 Fax: 613-728-6012



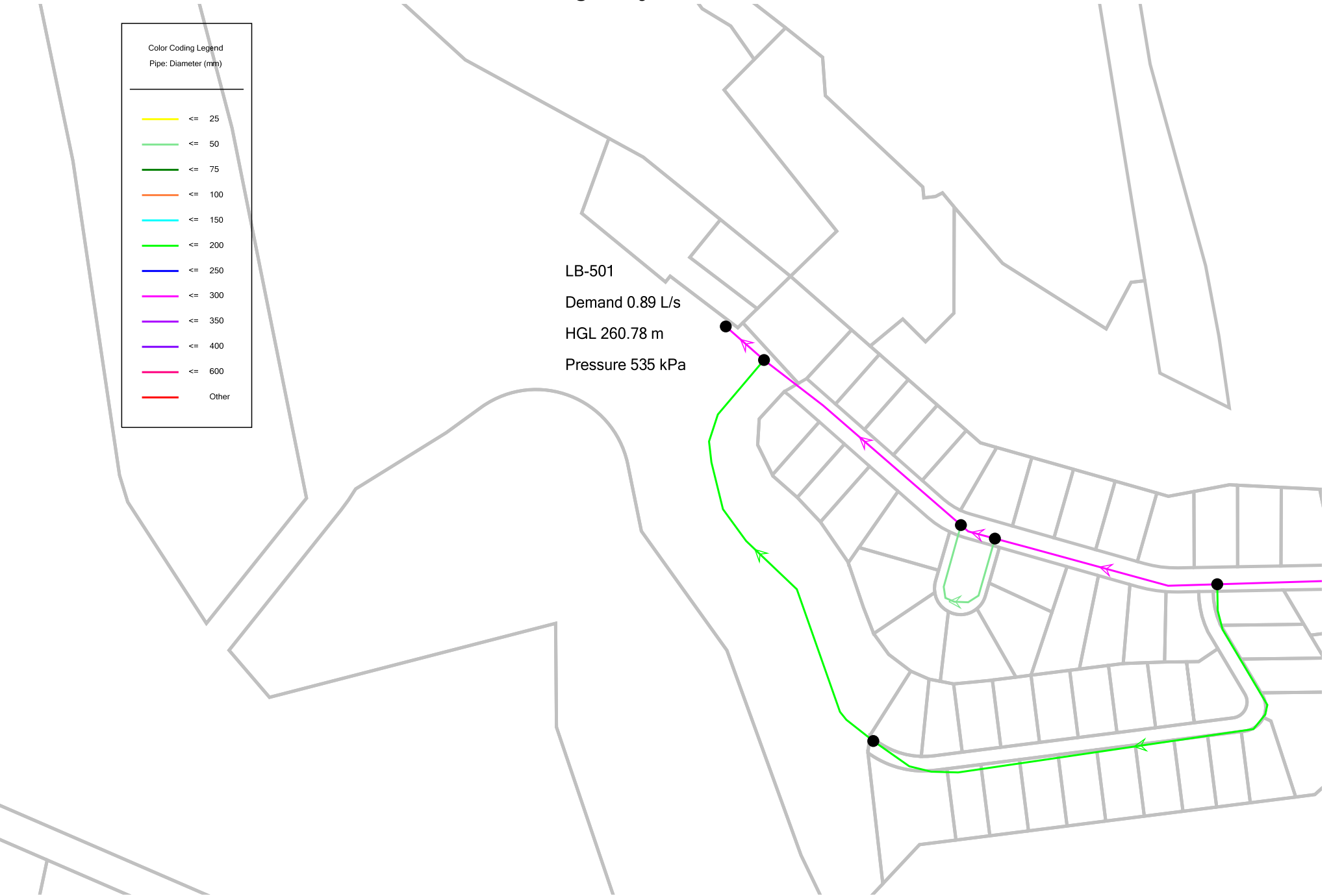
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Lora Bay Phase 4

Average Day Demand (0.89 L/s)

Color Coding Legend	
Pipe: Diameter (mm)	
	<= 25
	<= 50
	<= 75
	<= 100
	<= 150
	<= 200
	<= 250
	<= 300
	<= 350
	<= 400
	<= 600
	Other












LB-501
Demand 0.89 L/s
HGL 260.78 m
Pressure 535 kPa



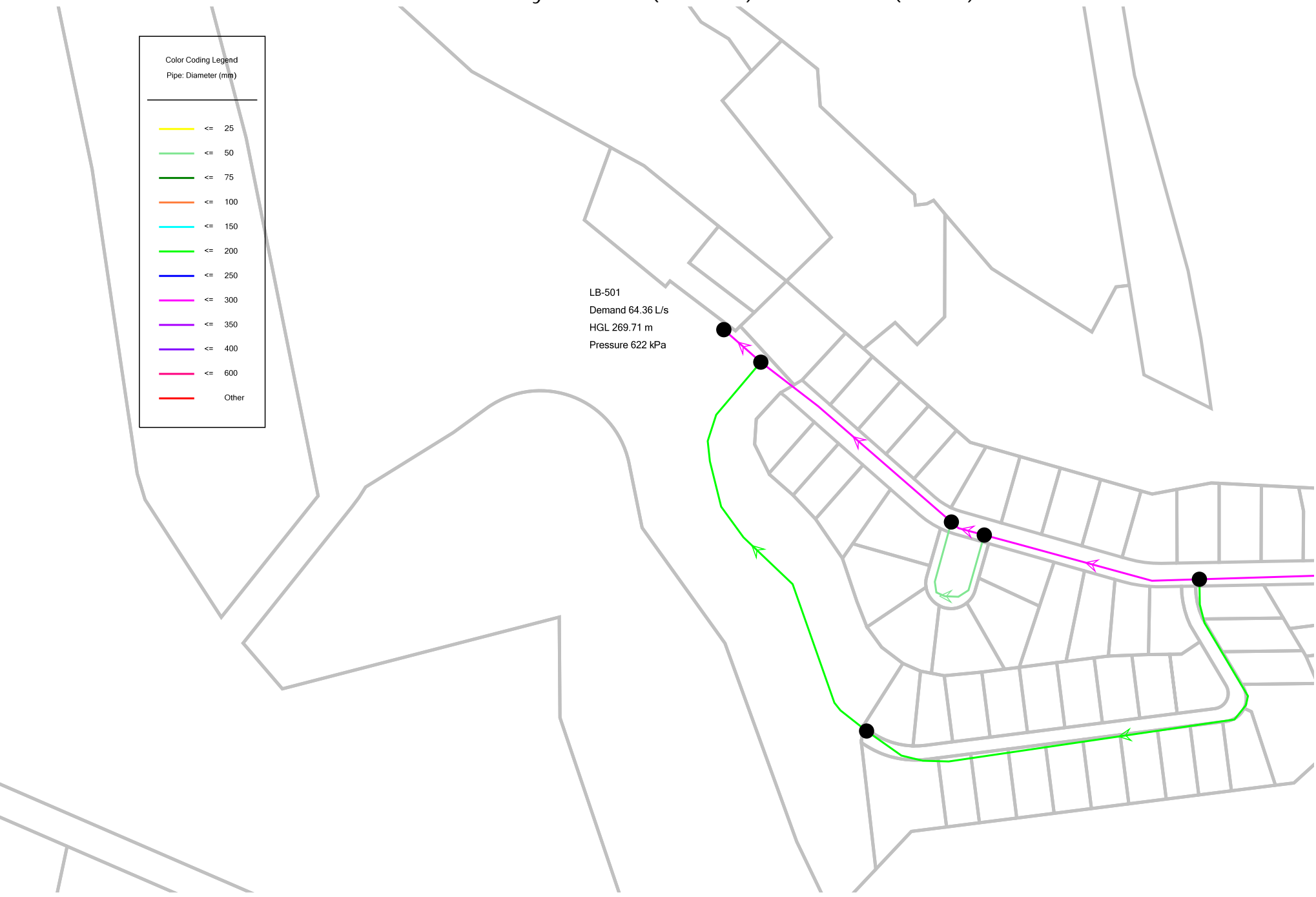
Lora Bay Phase 4

Maximum Day Demand (4.36 L/s) + Fire Flow (60 L/s)

Color Coding Legend
Pipe: Diameter (mm)

	<= 25
	<= 50
	<= 75
	<= 100
	<= 150
	<= 200
	<= 250
	<= 300
	<= 350
	<= 400
	<= 600
	Other











LB-501
Demand 64.36 L/s
HGL 269.71 m
Pressure 622 kPa



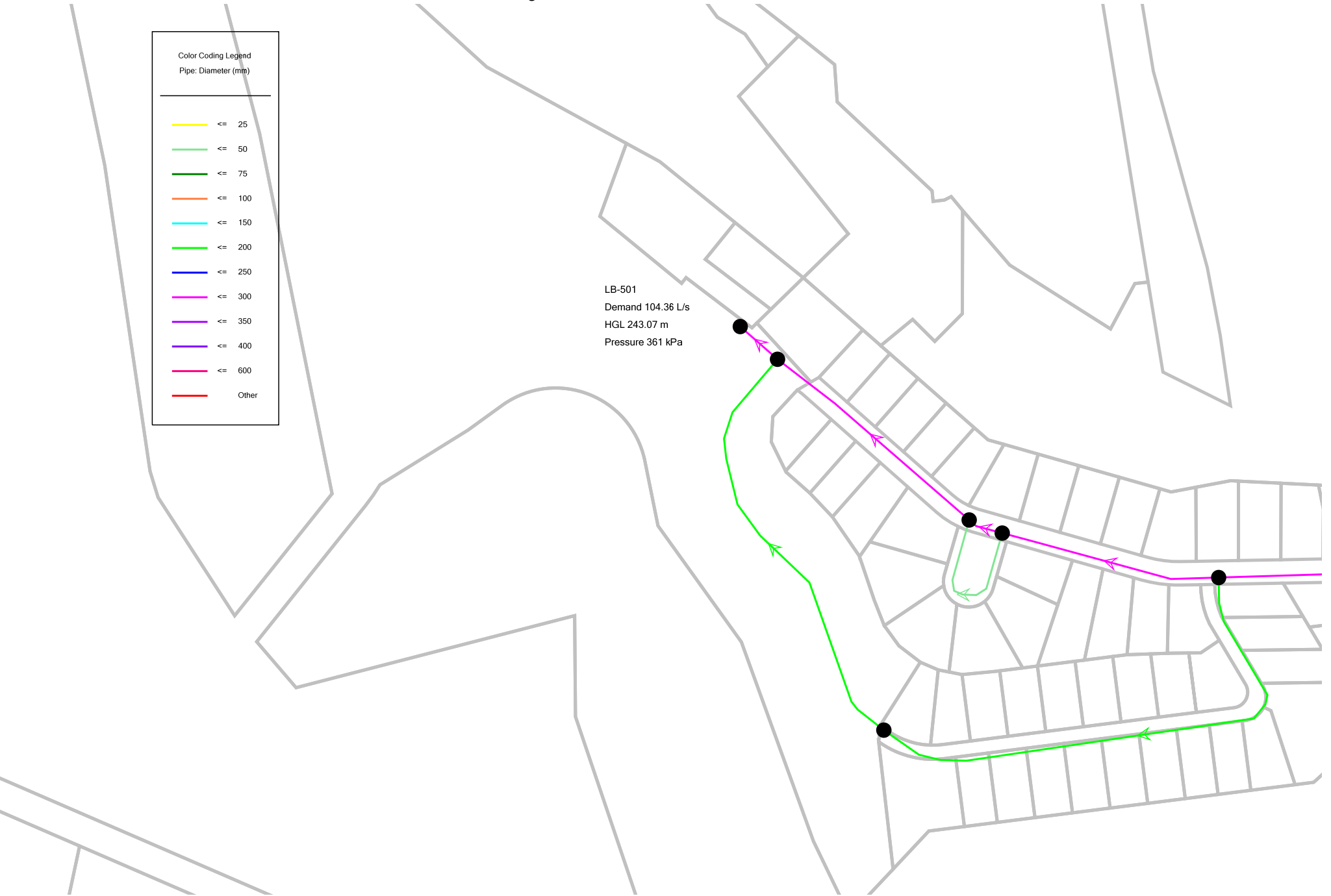
Lora Bay Phase 4

Maximum Day Demand (4.36 L/s) + Fire Flow (100 L/s)

Color Coding Legend
Pipe: Diameter (mm)













	<= 25
	<= 50
	<= 75
	<= 100
	<= 150
	<= 200
	<= 250
	<= 300
	<= 350
	<= 400
	<= 600
	Other

LB-501
Demand 104.36 L/s
HGL 243.07 m
Pressure 361 kPa

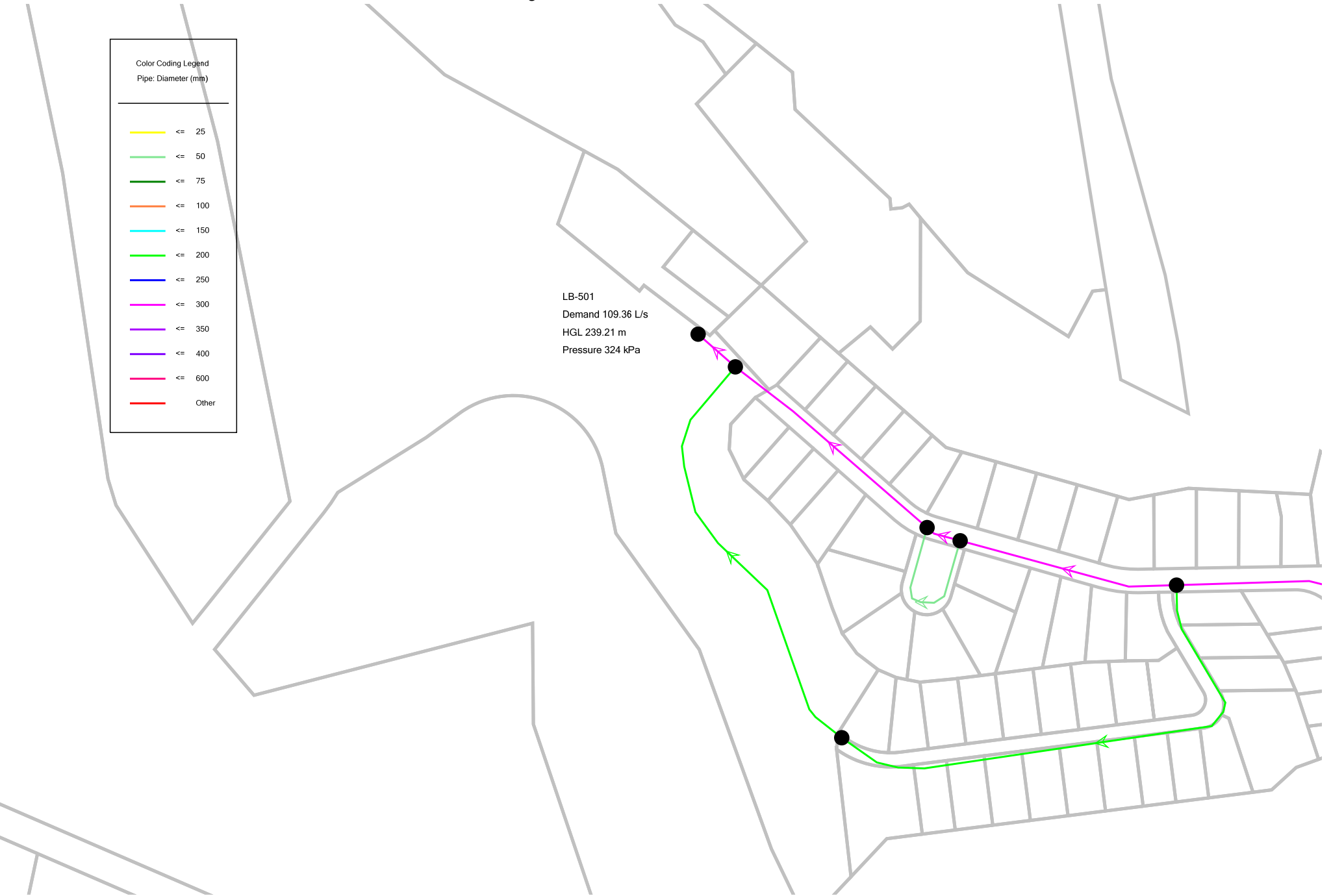


Lora Bay Phase 4

Maximum Day Demand (4.36 L/s) + Fire Flow (105 L/s)












Color Coding Legend	
Pipe: Diameter (mm)	
	<= 25
	<= 50
	<= 75
	<= 100
	<= 150
	<= 200
	<= 250
	<= 300
	<= 350
	<= 400
	<= 600
	Other

LB-501
Demand 109.36 L/s
HGL 239.21 m
Pressure 324 kPa

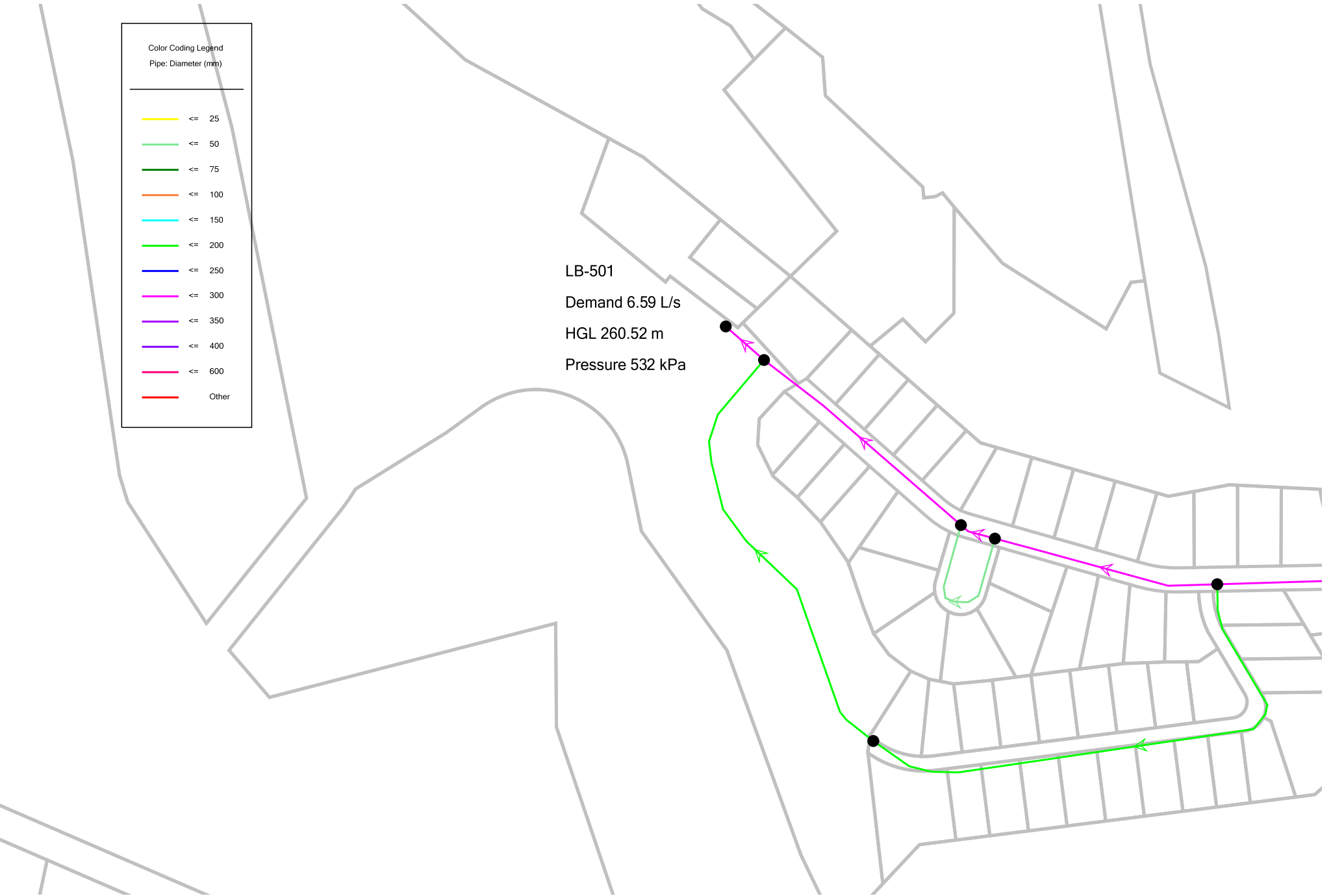


Lora Bay Phase 4

Peak Hour Demand (6.59 L/s)

Color Coding Legend	
Pipe: Diameter (mm)	
	<= 25
	<= 50
	<= 75
	<= 100
	<= 150
	<= 200
	<= 250
	<= 300
	<= 350
	<= 400
	<= 600
	Other

LB-501
Demand 6.59 L/s
HGL 260.52 m
Pressure 532 kPa





Project: Lora Bay Phase 4
 Project No.: 469-3061
 File: Pipe Loss Summary
 Design by: A. Spencer
 Date: 09-Jan-20
 Revised Date: 27-Apr-20
 Revised By: A. Spencer

Lora Bay Phase 4 - Junction Summary

Junction ID	Description	Street Name	Avg. Demand (L/c/day) ¹	Commercial/Institutional Avg. Demand (28m ³ /ha day) ²	Capita/Unit ³	Units	Population	Commercial/Institutional Area (ha)	Average Residential Daily Demand (L/s)	Average Commercial/Institutional Daily Demand (L/s)	Total Daily Demand (L/s)	Minimum Hourly Demand (L/s)	Maximum Daily Demand (L/s) ⁴	Peak Hourly Daily Demand (L/s) ⁴
J-1	Watermain Connection Point along West Ridge Drive (WRD, 0+347)	West Ridge Drive	450	28	2.3	1	3	0	0.02	0.00	0.02	0.002	0.08	0.12
J-2	Watermain at Low Point along West Ridge Drive (WRD, 0+327)	West Ridge Drive	450	28	2.3	2	5	0	0.03	0.00	0.03	0.003	0.13	0.19
J-3	East Intersection of West Ridge Drive and Street 'A' (WRD, 0+262)	West Ridge Drive	450	28	2.3	6	14	0	0.07	0.00	0.07	0.007	0.36	0.54
J-4	West Intersection of West Ridge Drive and Street 'A' (WRD, 0+120)	West Ridge Drive	450	28	2.3	7	17	0	0.09	0.00	0.09	0.009	0.43	0.66
J-5	Stub along West Ridge Drive for Future Connections (WRD, 0+010)	West Ridge Drive	450	28	2.3	0	0	0	0.00	0.00	0.00	0.000	0.00	0.00
J-6	Watermain Tee along Street 'A' for Midrise Block Watermain (St.A, 0+239)	Street 'A'	450	28	2.3	13	30	0	0.16	0.00	0.16	0.016	0.77	1.16
J-7	Stub for Midrise Block along Street 'A' (St.A, 0+239)	Street 'A'	450	28	2.3	0	0	0	0.00	0.00	0.00	0.000	0.00	0.00
J-8	Watermain along Street 'A' North of High Point (St.A, 0+085)	Street 'A'	450	28	2.3	9	21	0	0.11	0.00	0.11	0.011	0.54	0.81
J-MR	Watermain 140m within Block 39 (Midrise Block)	Block 39	450	28	2.3	41	95	0	0.49	0.00	0.49	0.049	2.42	3.66
Total											0.96	0.10	4.72	7.13

1. Average residential daily demand rate is based on Town of The Blue Mountains Engineering Standards (2009, Updated 2018)
 2. Average commercial/institutional daily demand rate is based on MECP Design Guidelines for Drinking-Water Systems, Section 3.4.3 Commercial and Institutional Water Demands
 3. Population per unit (Capita/unit) is based on Town of The Blue Mountains Engineering Standards (2009, Updated 2018)
 4. Maximum daily, minimum hourly and peak hourly demand factors are based on MECP Design Guidelines for Drinking-Water Systems, Table 3-3 for a population of 150 people

Fire Protection Water Supply Guideline
Part 3 of the Ontario Building Code (2006)

$$Q = KVS_{TOT}$$

Q = minimum supply of water in litres (L)
K = water supply coefficient
V = total building volume in cubic metres
S_{TOT} = total of spatial coefficient values from property line exposures on all sides

K = 23 Group C building with combustible construction (Table 1)
V = 9000 Three-storey units with a storey height of 3.0m
S_{TOT} = 1.2 S_{TOT} Need Not Exceed 2.0

$$Q = 248400 \quad L$$

Based on ranges listed in Table 2, the required minimum water supply flow rate is

6300	L/min
105	L/s

**WATER SUPPLY
FOR
PUBLIC FIRE PROTECTION**

1999



FIRE UNDERWRITERS SURVEY

A SERVICE TO INSURERS AND MUNICIPALITIES

Notes to Calculation

Note A: The guide is not expected to necessarily provide an adequate value for lumber yards, petroleum storage, refineries, grain elevators, and large chemical plants, but may indicate a minimum value for these hazards.

Note B: Judgment must be used for business, industrial, and other occupancies not specifically mentioned.

Note C: Consideration should be given to the configuration of the building(s) being considered and accessibility by the fire department.

Note D: Wood frame structures separated by less than 3 metres shall be considered as one fire area.

Note E: Fire Walls: - In determining floor areas, a fire wall that meets or exceeds the requirements of the current edition of the National Building Code of Canada (provided this necessitates a fire resistance rating of 2 or more hours) may be deemed to subdivide the building into more than one area or may, as a party wall, separate the building from an adjoining building.

Normally any unpierced party wall considered to form a boundary when determining floor areas may warrant up to a 10% exposure charge.

Note F: High one storey buildings: When a building is stated as 1=2, or more storeys, the number of storeys to be used in the formula depends upon the use being made of the building. For example, consider a 1=3 storey building. If the building is being used for high piled stock, or for rack storage, the building would probably be considered as 3 storeys and, in addition, an occupancy percentage increase may be warranted.

However, if the building is being used for steel fabrication and the extra height is provided only to facilitate movement of objects by a crane, the building would probably be considered as a one storey building and an occupancy credit percentage may be warranted.

Note G: If a building is exposed within 45 metres, normally some surcharge for exposure will be made.

Note H: Where wood shingle or shake roofs could contribute to spreading fires, add 2,000 L/min to 4,000 L/min in accordance with extent and condition.

Note I: Any non-combustible building is considered to warrant a 0.8 coefficient.

Note J: Dwellings: For groupings of detached one family and small two family dwellings not exceeding 2 stories in height, the following short method may be used. (For other residential buildings, the regular method should be used.)

Exposure distances	Suggested required fire flow	
	Wood Frame	Masonry or Brick
Less than 3m	See Note "D"	6,000 L/min
3 to 10m	4,000 L/min	4,000 L/min
10.1 to 30m	3,000 L/min	3,000 L/min
Over 30m	2,000 L/min	2,000 L/min

If the buildings are contiguous, use a minimum of 8,000 L/min. Also consider Note H.

OUTLINE OF PROCEDURE

- A. Determine the type of construction.
- B. Determine the ground floor area.
- C. Determine the height in storeys.
- D. Using the fire flow formula, determine the required fire flow to the nearest 1,000 L/min.
- E. Determine the increase or decrease for occupancy and apply to the value obtained in D above. Do not round off the answer.
- F. Determine the decrease, if any, for automatic sprinkler protection. Do not round off the value.
- G. Determine the total increase for exposures, Do not round off the value.
- H. To the answer obtained in E, subtract the value obtained in F and add the value obtained in G.

The final figure is customarily rounded off to the nearest 1,000 L/min.

Appendix B

CFCA FUS Fire Flow Calculations CFCA Water Distribution Model Inputs & Results

Water Supply for Public Fire Protection - 1999
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

1. An estimate of fire flow required for a given area may be determined by the formula:

$$F = 220 * C * \text{sqrt } A$$

where

- F = the required fire flow in litres per minute
- C = coefficient related to the type of construction
 - = 1.5 for wood frame construction (structure essentially all combustible)
 - = 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
 - = 0.8 for non-combustible construction (unprotected metal structural components)
 - = 0.6 for fire-resistive construction (fully protected frame, floors, roof)
- A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building considered.

Proposed Buildings		combustible construction
N/A	number of floors	1.0 C
N/A	sq.m. floor area	
	310 sq.m. total floor area	

Therefore F= 4,000 L/min (rounded to nearest 1000 L/min)

- Fire flow determined above shall not exceed:
- 30,000 L/min for wood frame construction
 - 30,000 L/min for ordinary construction
 - 25,000 L/min for non-combustible construction
 - 25,000 L/min for fire-resistive construction

2. Values obtained in No. 1 may be reduced by as much as 25% for occupancies having low contents fire hazard or may be increased by up to 25% surcharge for occupancies having a high fire hazard.

Non-Combustible	-25%	Free Burning	15%
Limited Combustible	-15%	Rapid Buring	25%
Combustible	No Charge		

Low fire Hazard occupancy for dwellings	-15% reduction
---	----------------

600 L/min reduction

Note: Flow determined shall not be less than 2,000 L/min

3. Sprinklers - The value obtained in No. 2 above maybe reduce by up to 50% for complete automatic sprinkler protection.

Buildings will not have automated sprinklers
0 L/min reduction

Water Supply for Public Fire Protection - 1999
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

4. Exposure - To the value obtained in No. 2, a percentage should be added for structures exposed within 45 metres by the fire area under consideration. The percentage shall depend upon the height, area, and construction of the building(s) being exposed, the separation, openings in the exposed building(s), the length and height of exposure, the provision of automatic sprinklers and/or outside sprinklers in the building(s) exposed, the occupancy of the exposed building(s) and the effect of hillside locations on the possible spread of fire.

Separation	Charge	Separation	Charge
0 to 3 m	25%	20.1 to 30 m	10%
3.1 to 10 m	20%	30.1 to 45 m	5%
10.1 to 20 m	15%		

Exposed buildings

Name	Distance			
North	Adjacent Dwelling	0	25%	850
South	Adjacent Dwelling	0	25%	850
West	Adjacent Dwelling	>45	0%	0
East	Adjacent Dwelling	25	10%	340
2,040 L/min Surcharge				

Determine Required Fire Flow

No.1	4,000
No. 2	600 reduction
No. 3	0 reduction
No. 4	<u>2,040</u> surcharge

Required Flow: 5,440 L/min
Rounded to nearest 1000L/min: 5,000 L/min or 83.3 L/s
 1,321 USGPM

Required Duration of Fire Flow

Flow Required L/min	Duration (hours)
2,000 or less	1.0
3,000	1.25
4,000	1.5
5,000	1.75
6,000	2.0
8,000	2.0
10,000	2.0
12,000	2.5
14,000	3.0
16,000	3.5
18,000	4.0
20,000	4.5
22,000	5.0
24,000	5.5
26,000	6.0
28,000	6.5
30,000	7.0
32,000	7.5
34,000	8.0
36,000	8.5
38,000	9.0
40,000 and over	9.5

Determine Required Fire Storage Volume

Flow from above 5,000 L/min
 Required duration 1.75 hours
 Therefore: 525,000 Litres or
 525 cu.m. is the required fire storage volume.

Lora Bay Block 39 - Townhome Building
Fire Protection Volume Calculation
CFCA File: 183-5908

June 28, 2021

Fire Protection Water Supply Guideline
Part 3 of the Ontario Building Code (2006)

$$Q = KVS_{TOT}$$

Q = minimum supply of water in litres (L)
K = water supply coefficient
V = total building volume in cubic metres
S_{TOT} = total of spatial coefficient values from property line exposures on all sides

K = 18 Group C building with combustible construction (Table 1)
V = 882 Three-storey units, Storey Height per Architectural Plans
S_{TOT} = 1 S_{TOT} Need Not Exceed 2.0

Q = 15876 L

Based on ranges listed in Table 2, the required minimum water supply flow rate is **2700 L/min**

45 L/s



Project: Lora Bay Block 39
 Project No.: 183-5908
 File: Pipe Loss Summary
 Design by: A. Spencer
 Date: 16-Jun-21
 Revised Date: 16-Jun-21
 Revised By: A. Spencer

Lora Bay Phase 4 & Block 39 - Junction Summary

Junction ID	Description	Street Name	Approx. Elevation (m)	Avg. Demand (L/c/day) ¹	Commercial/Institutional Avg. Demand (28m ³ /(ha day) ²	Capita/Unit ³	Units	Population	Commercial/Institutional Area (ha)	Average Residential Daily Demand (L/s)	Average Commercial/Institutional Daily Demand (L/s)	Total Daily Demand (L/s)	Minimum Hourly Demand (L/s)	Maximum Daily Demand (L/s) ⁴	Peak Hourly Daily Demand (L/s) ⁴
J-1	Watermain Connection Point along West Ridge Drive (WRD, 0+347)	West Ridge Drive	206.75	450	28	2.3	1	3	0	0.02	0.00	0.02	0.002	0.08	0.12
J-2	Watermain at Low Point along West Ridge Drive (WRD, 0+327)	West Ridge Drive	206.65	450	28	2.3	2	5	0	0.03	0.00	0.03	0.003	0.13	0.19
J-3	East Intersection of West Ridge Drive and Street 'A' (WRD, 0+262)	West Ridge Drive	207.60	450	28	2.3	6	14	0	0.07	0.00	0.07	0.007	0.36	0.54
J-4	West Intersection of West Ridge Drive and Street 'A' (WRD, 0+120)	West Ridge Drive	213.55	450	28	2.3	7	17	0	0.09	0.00	0.09	0.009	0.43	0.66
J-5	Stub along West Ridge Drive for Future Connections (WRD, 0+010)	West Ridge Drive	218.40	450	28	2.3	0	0	0	0.00	0.00	0.00	0.000	0.00	0.00
J-6	Watermain Tee along Street 'A' for Midrise Block Watermain (St.A, 0+239)	Street 'A'	208.78	450	28	2.3	13	30	0	0.16	0.00	0.16	0.016	0.77	1.16
J-7	Stub for Midrise Block along Street 'A' (St.A, 0+239)	Site	209.42	450	28	2.3	0	0	0	0.00	0.00	0.00	0.000	0.00	0.00
J-8	Watermain along Street 'A' North of High Point (St.A, 0+085)	Street 'A'	212.89	450	28	2.3	9	21	0	0.11	0.00	0.11	0.011	0.54	0.81
J-9	First Intersection	Site	209.17	450	28	2.3	5	12	0	0.06	0.00	0.06	0.006	0.31	0.46
J-10	West Intersection	Site	209.75	450	28	2.3	0	0	0	0.00	0.00	0.00	0.000	0.00	0.00
J-11	North Portion of Site (West Intersection)	Site	210.32	450	28	2.3	11	26	0	0.14	0.00	0.14	0.014	0.66	1.00
J-12	South Portion of Site (West Intersection)	Site	210.06	450	28	2.3	7	17	0	0.09	0.00	0.09	0.009	0.43	0.66
J-13	East Intersection	Site	207.92	450	28	2.3	0	0	0	0.00	0.00	0.00	0.000	0.00	0.00
J-14	North Portion of Site (East Intersection)	Site	208.10	450	28	2.3	5	12	0	0.06	0.00	0.06	0.006	0.31	0.46
J-15	South Portion of Site (East Intersection)	Site	207.73	450	28	2.3	5	12	0	0.06	0.00	0.06	0.006	0.31	0.46
Total												0.88	0.09	4.31	6.51

1. Average residential daily demand rate is based on Town of The Blue Mountains Engineering Standards (2009, Updated 2018)
 2. Average commercial/institutional daily demand rate is based on MECP Design Guidelines for Drinking-Water Systems, Section 3.4.3 Commercial and Institutional Water Demands
 3. Population per unit (Capita/unit) is based on Town of The Blue Mountains Engineering Standards (2009, Updated 2018)
 4. Maximum daily, minimum hourly and peak hourly demand factors are based on MECP Design Guidelines for Drinking-Water Systems, Table 3-3 for a population of 150 people



Project: Lora Bay Block 39
Project No.: 183-5908
File: Pipe Loss Summary
Design by: A. Spencer
Date: June 16, 2021
Revision Date: June 16, 2021
Revised By: A. Spencer

Lora Bay Phase 4 & Block 39 - Pipe Minor Losses Summary

Pipe ID	P-1			
Location	Watermain Connection Point (0+347-WRD) to Low Point (0+327-WRD)			
Material	PVC			
Length (m)	20			
Minor Loss	Number of Fittings	Loss Coef. (K)	SubTotal	
Gate Valve (Open)	0	0.39	0.00	
90° Bend (R/D=1 - Vertical)	0	0.37	0.00	
90° Bend (R/D=1 - Horizontal)	0	0.37	0.00	
45° Bend (Mitered - Vertical)	0	0.20	0.00	
45° Bend (Mitered - Horizontal)	0	0.20	0.00	
30° Bend (Mitered - Vertical)	2	0.10	0.20	
30° Bend (Mitered - Horizontal)	1	0.10	0.10	
Tee (Line Flow)	0	0.35	0.00	
Tee (Branch Flow)	0	1.28	0.00	
Reducer	0	0.64	0.00	
Total			0.30	
Pipe ID	P-2			
Location	Low Point (0+327-WRD) to East Intersection West Ridge Drive/Street 'A' (0+262-WRD)			
Material	PVC			
Length (m)	65			
Minor Loss	Number of Fittings	Loss Coef. (K)	SubTotal	
Gate Valve (Open)	0	0.39	0.00	
90° Bend (R/D=1 - Vertical)	0	0.37	0.00	
90° Bend (R/D=1 - Horizontal)	0	0.37	0.00	
45° Bend (Mitered - Vertical)	0	0.20	0.00	
45° Bend (Mitered - Horizontal)	0	0.20	0.00	
30° Bend (Mitered - Vertical)	3	0.10	0.30	
30° Bend (Mitered - Horizontal)	2	0.10	0.20	
Tee (Line Flow)	2	0.35	0.70	
Tee (Branch Flow)	0	1.28	0.00	
Reducer	0	0.64	0.00	
Total			1.20	
Pipe ID	P-3			
Location	East Intersection of West Ridge Drive/Street 'A' (0+262-WRD) to West Intersection of West Ridge Drive/Street 'A' (0+120-WRD)			
Material	PVC			
Length (m)	142			
Minor Loss	Number of Fittings	Loss Coef. (K)	SubTotal	
Gate Valve (Open)	1	0.39	0.39	
90° Bend (R/D=1 - Vertical)	0	0.37	0.00	
90° Bend (R/D=1 - Horizontal)	0	0.37	0.00	
45° Bend (Mitered - Vertical)	0	0.20	0.00	
45° Bend (Mitered - Horizontal)	0	0.20	0.00	
30° Bend (Mitered - Vertical)	4	0.10	0.40	
30° Bend (Mitered - Horizontal)	2	0.10	0.20	
Tee (Line Flow)	2	0.35	0.70	
Tee (Branch Flow)	0	1.28	0.00	
Reducer	0	0.64	0.00	
Total			1.69	



Project: Lora Bay Block 39
Project No.: 183-5908
File: Pipe Loss Summary
Design by: A. Spencer
Date: June 16, 2021
Revision Date: June 16, 2021
Revised By: A. Spencer

Lora Bay Phase 4 & Block 39 - Pipe Minor Losses Summary

Pipe ID P-4
Location West Intersection of West Ridge Drive /Street 'A' (0+120-WRD) to Stub for Future Connections (0+010-WRD)
Material PVC
Length (m) 110

Minor Loss	Number of Fittings	Loss Coef. (K)	SubTotal
Gate Valve (Open)	2	0.39	0.78
90° Bend (R/D=1 - Vertical)	0	0.37	0.00
90° Bend (R/D=1 - Horizontal)	0	0.37	0.00
45° Bend (Mitered - Vertical)	1	0.20	0.20
45° Bend (Mitered - Horizontal)	0	0.20	0.00
30° Bend (Mitered - Vertical)	5	0.10	0.50
30° Bend (Mitered - Horizontal)	3	0.10	0.30
Tee (Line Flow)	1	0.35	0.35
Tee (Branch Flow)	0	1.28	0.00
Reducer	0	0.64	0.00
Total			2.13

Pipe ID P-5
Location East Intersection of West Ridge Drive/Street 'A' (0+262-WRD, 0+454-St.A) to Watermain Tee for Midrise Block (0+239-St.A)
Material PVC
Length (m) 207

Minor Loss	Number of Fittings	Loss Coef. (K)	SubTotal
Gate Valve (Open)	2	0.39	0.78
90° Bend (R/D=1 - Vertical)	0	0.37	0.00
90° Bend (R/D=1 - Horizontal)	0	0.37	0.00
45° Bend (Mitered - Vertical)	0	0.20	0.00
45° Bend (Mitered - Horizontal)	1	0.20	0.20
30° Bend (Mitered - Vertical)	1	0.10	0.10
30° Bend (Mitered - Horizontal)	3	0.10	0.30
Tee (Line Flow)	3	0.35	1.05
Tee (Branch Flow)	1	1.28	1.28
Reducer	0	0.64	0.00
Total			3.71

Pipe ID P-6
Location Watermain Tee for Midrise Block (0+239-St.A) to Stub to Midrise Block (0+239-St.A)
Material PVC
Length (m) 13

Minor Loss	Number of Fittings	Loss Coef. (K)	SubTotal
Gate Valve (Open)	1	0.39	0.39
90° Bend (R/D=1 - Vertical)	0	0.37	0.00
90° Bend (R/D=1 - Horizontal)	0	0.37	0.00
45° Bend (Mitered - Vertical)	0	0.20	0.00
45° Bend (Mitered - Horizontal)	0	0.20	0.00
30° Bend (Mitered - Vertical)	3	0.10	0.30
30° Bend (Mitered - Horizontal)	1	0.10	0.10
Tee (Line Flow)	0	0.35	0.00
Tee (Branch Flow)	1	1.28	1.28
Reducer	0	0.64	0.00
Total			2.07



Project: Lora Bay Block 39
 Project No.: 183-5908
 File: Pipe Loss Summary
 Design by: A. Spencer
 Date: June 16, 2021
 Revision Date: June 16, 2021
 Revised By: A. Spencer

Lora Bay Phase 4 & Block 39 - Pipe Minor Losses Summary

Pipe ID P-7
Location Watermain Tee for Midrise Block (0+239-St.A) to Watermain North of High Point (0+085-St.A)
Material PVC
Length (m) 149

Minor Loss	Number of Fittings	Loss Coef. (K)	SubTotal
Gate Valve (Open)	0	0.39	0.00
90° Bend (R/D=1 - Vertical)	0	0.37	0.00
90° Bend (R/D=1 - Horizontal)	0	0.37	0.00
45° Bend (Mitered - Vertical)	0	0.20	0.00
45° Bend (Mitered - Horizontal)	2	0.20	0.40
30° Bend (Mitered - Vertical)	1	0.10	0.10
30° Bend (Mitered - Horizontal)	1	0.10	0.10
Tee (Line Flow)	1	0.35	0.35
Tee (Branch Flow)	0	1.28	0.00
Reducer	0	0.64	0.00
Total			0.95

Pipe ID P-8
Location Watermain North of High Point (0+085-St.A) to West Intersection of West Ridge Drive/Street 'A' (0+120-WRD, 0+012-St.A)
Material PVC
Length (m) 69

Minor Loss	Number of Fittings	Loss Coef. (K)	SubTotal
Gate Valve (Open)	1	0.39	0.39
90° Bend (R/D=1 - Vertical)	0	0.37	0.00
90° Bend (R/D=1 - Horizontal)	0	0.37	0.00
45° Bend (Mitered - Vertical)	0	0.20	0.00
45° Bend (Mitered - Horizontal)	1	0.20	0.20
30° Bend (Mitered - Vertical)	1	0.10	0.10
30° Bend (Mitered - Horizontal)	0	0.10	0.00
Tee (Line Flow)	0	0.35	0.00
Tee (Branch Flow)	1	1.28	1.28
Reducer	0	0.64	0.00
Total			1.97

Pipe ID P-9
Location Stub to Midrise Block to First Intersection
Material PVC
Length (m) 65

Minor Loss	Number of Fittings	Loss Coef. (K)	SubTotal
Gate Valve (Open)	1	0.39	0.39
90° Bend (R/D=1 - Vertical)	0	0.37	0.00
90° Bend (R/D=1 - Horizontal)	0	0.37	0.00
45° Bend (Mitered - Vertical)	0	0.20	0.00
45° Bend (Mitered - Horizontal)	2	0.20	0.40
30° Bend (Mitered - Vertical)	1	0.10	0.10
30° Bend (Mitered - Horizontal)	0	0.10	0.00
Tee (Line Flow)	0	0.35	0.00
Tee (Branch Flow)	0	1.28	0.00
Reducer	0	0.64	0.00
Total			0.89

Pipe ID P-10
Location First Intersection to West Intersection
Material PVC
Length (m) 35

Minor Loss	Number of Fittings	Loss Coef. (K)	SubTotal
Gate Valve (Open)	2	0.39	0.78
90° Bend (R/D=1 - Vertical)	0	0.37	0.00
90° Bend (R/D=1 - Horizontal)	0	0.37	0.00
45° Bend (Mitered - Vertical)	2	0.20	0.40
45° Bend (Mitered - Horizontal)	1	0.20	0.20
30° Bend (Mitered - Vertical)	0	0.10	0.00
30° Bend (Mitered - Horizontal)	0	0.10	0.00
Tee (Line Flow)	0	0.35	0.00
Tee (Branch Flow)	1	1.28	1.28
Reducer	0	0.64	0.00
Total			2.66



Project: Lora Bay Block 39
Project No.: 183-5908
File: Pipe Loss Summary
Design by: A. Spencer
Date: June 16, 2021
Revision Date: June 16, 2021
Revised By: A. Spencer

Lora Bay Phase 4 & Block 39 - Pipe Minor Losses Summary

Pipe ID P-11
 Location West Intersection to North Portion of Site
 Material PVC
 Length (m) 85

Minor Loss	Number of Fittings	Loss Coef. (K)	SubTotal
Gate Valve (Open)	2	0.39	0.78
90° Bend (R/D=1 - Vertical)	0	0.37	0.00
90° Bend (R/D=1 - Horizontal)	0	0.37	0.00
45° Bend (Mitered - Vertical)	0	0.20	0.00
45° Bend (Mitered - Horizontal)	0	0.20	0.00
30° Bend (Mitered - Vertical)	1	0.10	0.10
30° Bend (Mitered - Horizontal)	0	0.10	0.00
Tee (Line Flow)	0	0.35	0.00
Tee (Branch Flow)	1	1.28	1.28
Reducer	0	0.64	0.00
Total			2.16

Pipe ID P-12
 Location West Intersection to South Portion of Site
 Material PVC
 Length (m) 45

Minor Loss	Number of Fittings	Loss Coef. (K)	SubTotal
Gate Valve (Open)	2	0.39	0.78
90° Bend (R/D=1 - Vertical)	0	0.37	0.00
90° Bend (R/D=1 - Horizontal)	0	0.37	0.00
45° Bend (Mitered - Vertical)	0	0.20	0.00
45° Bend (Mitered - Horizontal)	0	0.20	0.00
30° Bend (Mitered - Vertical)	1	0.10	0.10
30° Bend (Mitered - Horizontal)	0	0.10	0.00
Tee (Line Flow)	0	0.35	0.00
Tee (Branch Flow)	1	1.28	1.28
Reducer	0	0.64	0.00
Total			2.16

Pipe ID P-13
 Location First Intersection to East Intersection
 Material PVC
 Length (m) 30

Minor Loss	Number of Fittings	Loss Coef. (K)	SubTotal
Gate Valve (Open)	2	0.39	0.78
90° Bend (R/D=1 - Vertical)	0	0.37	0.00
90° Bend (R/D=1 - Horizontal)	0	0.37	0.00
45° Bend (Mitered - Vertical)	2	0.20	0.40
45° Bend (Mitered - Horizontal)	0	0.20	0.00
30° Bend (Mitered - Vertical)	0	0.10	0.00
30° Bend (Mitered - Horizontal)	1	0.10	0.10
Tee (Line Flow)	1	0.35	0.35
Tee (Branch Flow)	0	1.28	0.00
Reducer	0	0.64	0.00
Total			1.63



Project: Lora Bay Block 39
Project No.: 183-5908
File: Pipe Loss Summary
Design by: A. Spencer
Date: June 16, 2021
Revision Date: June 16, 2021
Revised By: A. Spencer

Lora Bay Phase 4 & Block 39 - Pipe Minor Losses Summary

Pipe ID P-14
Location East Intersection to North Portion of Site
Material PVC
Length (m) 35

Minor Loss	Number of Fittings	Loss Coef. (K)	SubTotal
Gate Valve (Open)	2	0.39	0.78
90° Bend (R/D=1 - Vertical)	0	0.37	0.00
90° Bend (R/D=1 - Horizontal)	0	0.37	0.00
45° Bend (Mitered - Vertical)	0	0.20	0.00
45° Bend (Mitered - Horizontal)	0	0.20	0.00
30° Bend (Mitered - Vertical)	0	0.10	0.00
30° Bend (Mitered - Horizontal)	1	0.10	0.10
Tee (Line Flow)	0	0.35	0.00
Tee (Branch Flow)	1	1.28	1.28
Reducer	0	0.64	0.00
Total			2.16

Pipe ID P-15
Location East Intersection to South Portion of Site
Material PVC
Length (m) 40

Minor Loss	Number of Fittings	Loss Coef. (K)	SubTotal
Gate Valve (Open)	2	0.39	0.78
90° Bend (R/D=1 - Vertical)	0	0.37	0.00
90° Bend (R/D=1 - Horizontal)	0	0.37	0.00
45° Bend (Mitered - Vertical)	2	0.20	0.40
45° Bend (Mitered - Horizontal)	0	0.20	0.00
30° Bend (Mitered - Vertical)	0	0.10	0.00
30° Bend (Mitered - Horizontal)	1	0.10	0.10
Tee (Line Flow)	0	0.35	0.00
Tee (Branch Flow)	1	1.28	1.28
Reducer	0	0.64	0.00
Total			2.56



Project: Lora Bay Block 39
Project No.: 183-5908
Design By: A. Spencer
Date: June 16, 2021
Revision Date: June 24, 2021
Revised By: A. Spencer

Pipe Table - Average Daily Demand Lora Bay Phase 4 & Block 39

Label	Start Node	Stop Node	Length (m)	Diameter (mm)	Material	Hazen-Williams C	Minor Loss	Flow (L/s)	Velocity (m/s)	Headloss Gradient (m/m)
P-1	J-1	J-2	20	300	PVC	130	0.30	3.5	0.05	0.000
P-2	J-2	J-3	65	300	PVC	130	1.20	3.47	0.05	0.000
P-3	J-3	J-4	142	300	PVC	130	1.69	1.522	0.02	0.000
P-4	J-4	J-5	110	300	PVC	130	2.13	0	0.00	0.000
P-5	J-3	J-6	207	300	PVC	130	3.71	1.878	0.03	0.000
P-6	J-6	J-7	13	300	PVC	130	2.07	3.04	0.04	0.000
P-7	J-6	J-8	149	300	PVC	130	0.95	-1.322	0.02	0.000
P-8	J-8	J-4	69	300	PVC	130	1.97	-1.432	0.02	0.000
P-9	J-7	J-9	65	200	PVC	120	0.89	3.04	0.10	0.000
P-10	J-9	J-10	35	200	PVC	120	2.66	1.66	0.05	0.000
P-11	J-10	J-11	85	200	PVC	120	2.16	1	0.03	0.000
P-12	J-10	J-12	45	200	PVC	120	2.16	0.66	0.02	0.000
P-13	J-9	J-13	30	200	PVC	120	1.63	0.92	0.03	0.000
P-14	J-13	J-14	35	200	PVC	120	2.16	0.46	0.01	0.000
P-15	J-13	J-15	40	200	PVC	120	2.56	0.46	0.01	0.000
P-Ext 1	R-1	PMP-1	1	1,000	PVC	1	0.00	3.52	0.00	0.000
P-Ext2	PMP-1	J-1	1	1,000	PVC	1	0.00	3.52	0.00	0.000



Project: Lora Bay Block 39
Project No.: 183-5908
Design By: A. Spencer
Date: June 16, 2021
Revision Date: June 24, 2021
Revised By: A. Spencer

Pipe Table - Minimum Hourly Demand Lora Bay Phase 4 & Block 39

Label	Start Node	Stop Node	Length (m)	Diameter (mm)	Material	Hazen-Williams C	Minor Loss	Flow (L/s)	Velocity (m/s)	Headloss Gradient (m/m)
P-1	J-1	J-2	20	300	PVC	130	0.30	3.086	0.04	0.000
P-2	J-2	J-3	65	300	PVC	130	1.20	3.083	0.04	0.000
P-3	J-3	J-4	142	300	PVC	130	1.69	1.333	0.02	0.000
P-4	J-4	J-5	110	300	PVC	130	2.13	0	0.00	0.000
P-5	J-3	J-6	207	300	PVC	130	3.71	1.743	0.02	0.000
P-6	J-6	J-7	13	300	PVC	130	2.07	3.04	0.04	0.000
P-7	J-6	J-8	149	300	PVC	130	0.95	-1.313	0.02	0.000
P-8	J-8	J-4	69	300	PVC	130	1.97	-1.324	0.02	0.000
P-9	J-7	J-9	65	200	PVC	120	0.89	3.04	0.10	0.000
P-10	J-9	J-10	35	200	PVC	120	2.66	1.66	0.05	0.000
P-11	J-10	J-11	85	200	PVC	120	2.16	1	0.03	0.000
P-12	J-10	J-12	45	200	PVC	120	2.16	0.66	0.02	0.000
P-13	J-9	J-13	30	200	PVC	120	1.63	0.92	0.03	0.000
P-14	J-13	J-14	35	200	PVC	120	2.16	0.46	0.01	0.000
P-15	J-13	J-15	40	200	PVC	120	2.56	0.46	0.01	0.000
P-Ext 1	R-1	PMP-1	1	1000	PVC	1	0.00	3.088	0.00	0.000
P-Ext2	PMP-1	J-1	1	1000	PVC	1	0.00	3.088	0.00	0.000



Project: Lora Bay Block 39
Project No.: 183-5908
Design By: A. Spencer
Date: June 16, 2021
Revision Date: June 24, 2021
Revised By: A. Spencer

Pipe Table - Peak Hourly Demand Lora Bay Phase 4 & Block 39

Label	Start Node	Stop Node	Length (m)	Diameter (mm)	Material	Hazen-Williams C	Minor Loss	Flow (L/s)	Velocity (m/s)	Headloss Gradient (m/m)
P-1	J-1	J-2	20	300	PVC	130	0.30	6.4	0.09	0.000
P-2	J-2	J-3	65	300	PVC	130	1.20	6.21	0.09	0.000
P-3	J-3	J-4	142	300	PVC	130	1.69	2.808	0.04	0.000
P-4	J-4	J-5	110	300	PVC	130	2.13	0	0.00	0.000
P-5	J-3	J-6	207	300	PVC	130	3.71	2.862	0.04	0.000
P-6	J-6	J-7	13	300	PVC	130	2.07	3.04	0.04	0.000
P-7	J-6	J-8	149	300	PVC	130	0.95	-1.338	0.02	0.000
P-8	J-8	J-4	69	300	PVC	130	1.97	-2.148	0.03	0.000
P-9	J-7	J-9	65	200	PVC	120	0.89	3.04	0.10	0.000
P-10	J-9	J-10	35	200	PVC	120	2.66	1.66	0.05	0.000
P-11	J-10	J-11	85	200	PVC	120	2.16	1	0.03	0.000
P-12	J-10	J-12	45	200	PVC	120	2.16	0.66	0.02	0.000
P-13	J-9	J-13	30	200	PVC	120	1.63	0.92	0.03	0.000
P-14	J-13	J-14	35	200	PVC	120	2.16	0.46	0.01	0.000
P-15	J-13	J-15	40	200	PVC	120	2.56	0.46	0.01	0.000
P-Ext 1	R-1	PMP-1	1	1,000	PVC	1	0.00	6.52	0.01	0.001
P-Ext2	PMP-1	J-1	1	1,000	PVC	1	0.00	6.52	0.01	0.001



Project: Lora Bay Block 39
Project No.: 183-5908
Design By: A. Spencer
Date: June 16, 2021
Revision Date: June 24, 2021
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Pipe Table - Maximum Daily Demand Lora Bay Phase 4 & Block 39

Label	Start Node	Stop Node	Length (m)	Diameter (mm)	Material	Hazen-Williams C	Minor Loss	Flow (L/s)	Velocity (m/s)	Headloss Gradient (m/m)
P-1	J-1	J-2	20	300	PVC	130	0.3	5.27	0.07	0.000
P-2	J-2	J-3	65	300	PVC	130	1.2	5.14	0.07	0.000
P-3	J-3	J-4	142	300	PVC	130	1.69	2.309	0.03	0.000
P-4	J-4	J-5	110	300	PVC	130	2.13	0	0.00	0.000
P-5	J-3	J-6	207	300	PVC	130	3.71	2.471	0.03	0.000
P-6	J-6	J-7	13	300	PVC	130	2.07	3.04	0.04	0.000
P-7	J-6	J-8	149	300	PVC	130	0.95	-1.339	0.02	0.000
P-8	J-8	J-4	69	300	PVC	130	1.97	-1.879	0.03	0.000
P-9	J-7	J-9	65	200	PVC	120	0.89	3.04	0.10	0.000
P-10	J-9	J-10	35	200	PVC	120	2.66	1.66	0.05	0.000
P-11	J-10	J-11	85	200	PVC	120	2.16	1	0.03	0.000
P-12	J-10	J-12	45	200	PVC	120	2.16	0.66	0.02	0.000
P-13	J-9	J-13	30	200	PVC	120	1.63	0.92	0.03	0.000
P-14	J-13	J-14	35	200	PVC	120	2.16	0.46	0.01	0.000
P-15	J-13	J-15	40	200	PVC	120	2.56	0.46	0.01	0.000
P-Ext 1	R-1	PMP-1	1	1,000	PVC	1	0	5.35	0.01	0.001
P-Ext2	PMP-1	J-1	1	1,000	PVC	1	0	5.35	0.01	0.001



Project: Lora Bay Block 39
Project No.: 183-5908
Design By: A. Spencer
Date: June 16, 2021
Revision Date: June 24, 2021
Revised By: A. Spencer

Junction Table - Average Daily Demand Lora Bay Phase 4 & Block 39

Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (kPa)
J-1	206.75	0.02	271.39	633
J-2	206.65	0.03	271.39	634
J-3	207.60	0.07	271.39	624
J-4	213.55	0.09	271.39	566
J-5	218.40	0.00	271.39	519
J-6	208.78	0.16	271.39	613
J-7	209.42	0.00	271.39	607
J-8	212.89	0.11	271.39	573
J-9	209.17	0.46	271.39	609
J-10	209.75	0.00	271.38	603
J-11	210.32	1.00	271.38	598
J-12	210.06	0.66	271.38	600
J-13	207.92	0.00	271.39	621
J-14	208.10	0.46	271.39	619
J-15	207.73	0.46	271.39	623



Project: Lora Bay Block 39
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Junction Table - Minimum Hourly Demand Lora Bay Phase 4 & Block 39

Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (kPa)
J-1	206.75	0.002	271.39	633
J-2	206.65	0.003	271.39	634
J-3	207.60	0.007	271.39	624
J-4	213.55	0.009	271.39	566
J-5	218.40	0.000	271.39	519
J-6	208.78	0.016	271.39	613
J-7	209.42	0.000	271.39	607
J-8	212.89	0.011	271.39	573
J-9	209.17	0.460	271.39	609
J-10	209.75	0.000	271.38	603
J-11	210.32	1.000	271.38	598
J-12	210.06	0.660	271.38	600
J-13	207.92	0.000	271.39	621
J-14	208.10	0.460	271.39	619
J-15	207.73	0.460	271.39	623



Project: Lora Bay Block 39
Project No.: 183-5908
Design By: A. Spencer
Date: June 16, 2021
Revision Date: June 24, 2021
Revised By: A. Spencer

Junction Table - Peak Hourly Demand Lora Bay Phase 4 & Block 39

Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (kPa)
J-1	206.75	0.12	271.39	633
J-2	206.65	0.19	271.39	634
J-3	207.60	0.54	271.39	624
J-4	213.55	0.66	271.39	566
J-5	218.40	0.00	271.39	519
J-6	208.78	1.16	271.39	613
J-7	209.42	0.00	271.39	606
J-8	212.89	0.81	271.39	573
J-9	209.17	0.46	271.38	609
J-10	209.75	0.00	271.38	603
J-11	210.32	1.00	271.38	598
J-12	210.06	0.66	271.38	600
J-13	207.92	0.00	271.38	621
J-14	208.10	0.46	271.38	619
J-15	207.73	0.46	271.38	623



Project: Lora Bay Block 39
Project No.: 183-5908
Design By: A. Spencer
Date: June 16, 2021
Revision Date: June 24, 2021
Revised By: A. Spencer

Junction Table - Maximum Daily Demand Lora Bay Phase 4 & Block 39

Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (kPa)
J-1	206.75	0.08	271.39	633
J-2	206.65	0.13	271.39	634
J-3	207.60	0.36	271.39	624
J-4	213.55	0.43	271.39	566
J-5	218.40	0.00	271.39	519
J-6	208.78	0.77	271.39	613
J-7	209.42	0.00	271.39	606
J-8	212.89	0.54	271.39	573
J-9	209.17	0.46	271.38	609
J-10	209.75	0.00	271.38	603
J-11	210.32	1.00	271.38	598
J-12	210.06	0.66	271.38	600
J-13	207.92	0.00	271.38	621
J-14	208.10	0.46	271.38	619
J-15	207.73	0.46	271.38	623



Project: Lora Bay Block 39
Project No.: 183-5908
Design By: A. Spencer
Date: June 16, 2021
Revision Date: June 24, 2021
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Fire Flow Lora Bay Phase 4 & Block 39

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (L/s)	Fire Flow (Available) (L/s)	Flow (Total Needed) (L/s)	Flow (Total Available) (L/s)	Pressure (Residual Lower Limit) (kPa)	Pressure (Calculated Residual Lower Limit) (kPa)	Pressure (Zone Lower Limit) (kPa)	Calculated Minimum Zone Pressure (kPa)	Junction w/Minimum Pressure (Zone)
J-1	TRUE	83.3	107.642	83.38	107.722	140	254	140	140	J-5
J-2	TRUE	83.3	107.521	83.43	107.651	140	255	140	140	J-5
J-3	TRUE	83.3	107.112	83.66	107.472	140	246	140	140	J-5
J-4	TRUE	83.3	106.731	83.73	107.161	140	188	140	140	J-5
J-5	TRUE	83.3	106.118	83.3	106.118	140	140	140	198	J-4
J-6	TRUE	83.3	106.939	84.07	107.709	140	230	140	140	J-5
J-7	TRUE	83.3	106.939	83.3	106.939	140	220	140	140	J-5
J-8	TRUE	83.3	106.805	83.84	107.345	140	192	140	141	J-5
J-9	TRUE	83.3	106.9	83.76	107.36	140	177	140	141	J-5
J-10	TRUE	83.3	106.24	83.3	106.24	140	146	140	140	J-11
J-11	TRUE	83.3	102.569	84.3	103.569	140	140	140	202	J-12
J-12	TRUE	83.3	104.115	83.96	104.775	140	140	140	175	J-11
J-13	TRUE	83.3	106.914	83.3	106.914	140	161	140	140	J-5
J-14	TRUE	83.3	106.124	83.76	106.584	140	140	140	153	J-5
J-15	FALSE	83.3	106.032	83.76	106.492	140	140	140	154	J-5

Appendix C

H & P Sanitary Sewer Design Sheet

**LORA BAY CORPORATION
SERVICING DESIGN REPORT**

for

**PHASE 3 RESIDENTIAL DEVELOPMENT
WEST OF ROUNDABOUT AND ADJACENT TO
SUNSET BLVD.**

Project No. 307005
Date: February, 2007

Prepared by:

HENDERSON, PADDON & ASSOCIATES LIMITED

Civil Engineering Consultants & Planners
Clarksburg Schoolhouse Properties
103 Hillcrest Drive, Box 308
CLARKSBURG, Ontario, N0H 1J0
Phone: (519) 599-3793
Fax: (519) 599-2878
Email: hpa3@hp.on.ca
Website: www.hp.on.ca

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/jlk

SANITARY SEWER DESIGN SHEET

q = average daily per capita flow (150 L/cap, d)
 I = unit of peak extraneous flow $\left(\frac{1}{1000} \frac{L}{ha \cdot d} \right) \rightarrow 277 \frac{L}{d}$
 M = peaking factor
 $Q(p)$ = peak population flow (L/s)
 $Q(i)$ = peak extraneous flow (L/s)
 $Q(d)$ = peak design flow

$M = 1 + \frac{14}{4 + \sqrt{P}}$ where P = population in 1000's
 $Q(p) = \frac{PqM}{86.4}$ (L/s)
 $Q(i) = IA$ (L/s) where A = area in hectares
 $Q(d) = Q(p) + Q(i)$ (L/s)

LOCATION			INDIVIDUAL		CUMULATIVE		Peaking factor M	Pop. flow Q(p) (L/s)	Peak extraneous flow Q(i) (L/s)	Peak design flow Q(d) (L/s)	PROPOSED SEWER					
STREET	FROM	TO	Pop.	Area A (hectares)	Pop.	Area A (hectares)					Length (m)	Pipe size (mm)	Type of pipe	Grade %	Capacity (L/s) $n=0.018$	Full flow velocity (m/s)
WEST RIDGE	FUTURE	PLUG	1358	-	1358	-	3.71	26.24	4.35	30.59	-	-	-	-	-	
WEST RIDGE	PLUG	SAMH 101	5	-	1361	-	3.71	26.30	4.36	30.66	31.55	250	PVC	0.60	48.14	0.95
WEST RIDGE	SAMH 101	SAMH 102	10	-	1449	-	3.69	27.85	4.65	32.50	86.46	250	PVC	0.60	48.14	0.95
WEST RIDGE	SAMH 102	SAMH 103	20	-	1469	-	3.69	28.23	4.71	32.94	92.55	250	PVC	0.60	48.14	0.95
WEST RIDGE	SAMH 103	SAMH 104	-	-	1469	-	3.69	28.23	4.71	32.94	18.30	250	PVC	0.60	48.14	0.95
WEST RIDGE	SAMH 104	SAMH 105	5	-	1489	-	3.68	28.54	4.77	33.31	59.50	250	PVC	0.60	48.14	0.95
WEST RIDGE	SAMH 105	SAMH 106	13	-	1502	-	3.68	28.77	4.82	33.61	59.40	250	PVC	1.50	76.12	1.50
WEST RIDGE	SAMH 106	SAMH 107	5	-	1507	-	3.68	28.88	4.83	33.71	23.55	250	PVC	1.00	62.19	1.22
WEST RIDGE	SAMH 113	SAMH 112	8	-	8	-	4.42	0.18	0.03	0.21	73.85	200	PVC	3.00	59.41	1.82
WEST RIDGE	SAMH 112	SAMH 111	5	-	13	-	4.40	0.30	0.04	0.34	47.10	200	PVC	0.50	24.25	0.75
WEST RIDGE	SAMH 111	SAMH 110	15	-	28	-	4.36	0.64	0.07	0.73	74.90	200	PVC	0.50	24.25	0.75
WEST RIDGE	SAMH 110	SAMH 109	7	-	35	-	4.34	0.79	0.11	0.90	38.90	200	PVC	0.50	24.25	0.75
WEST RIDGE	SAMH 109	SAMH 108	8	-	43	-	4.33	0.97	0.14	1.11	20.80	200	PVC	0.50	24.25	0.75
WEST RIDGE	SAMH 108	SAMH 107	8	-	51	-	4.31	1.14	0.16	1.30	100.25	200	PVC	0.40	21.09	0.67
LAUDRY LANE	SAMH 207	SAMH 206	48	-	48	-	4.32	1.08	0.15	1.23	86.40	200	PVC	2.60	55.31	1.70
LAUDRY LANE	SAMH 206	SAMH 205	8	-	56	-	4.30	1.25	0.18	1.48	47.35	200	PVC	2.60	55.31	1.70
LAUDRY LANE	SAMH 205	SAMH 204	2	-	58	-	4.30	1.30	0.19	1.49	27.05	200	PVC	2.80	57.40	1.76
LAUDRY LANE	SAMH 204	SAMH 203	5	-	63	-	4.29	1.41	0.20	1.61	24.30	200	PVC	4.50	72.77	2.24
LAUDRY LANE	SAMH 203	SAMH 202	5	-	68	-	4.29	1.52	0.22	1.74	18.00	200	PVC	2.00	48.51	1.49

ALTERNATIVE WITH ALL FUTURE FLOWS GO TO PHASE 3
END OF WEST RIDGE DRIVE

DESIGN JSW
 CHECKED
 DATE FEB 28, 2007

PROJECT LORA BAY - PHASE 3

SHEET No.
 1 of 4

SANITARY SEWER DESIGN SHEET

q = average daily per capita flow (—L/cap. d)
 I = unit of peak extraneous flow (—L/ha. s)
 M = peaking factor
 Q (p) = peak population flow (L/s)
 Q (i) = peak extraneous flow (L/s)
 Q (d) = peak design flow

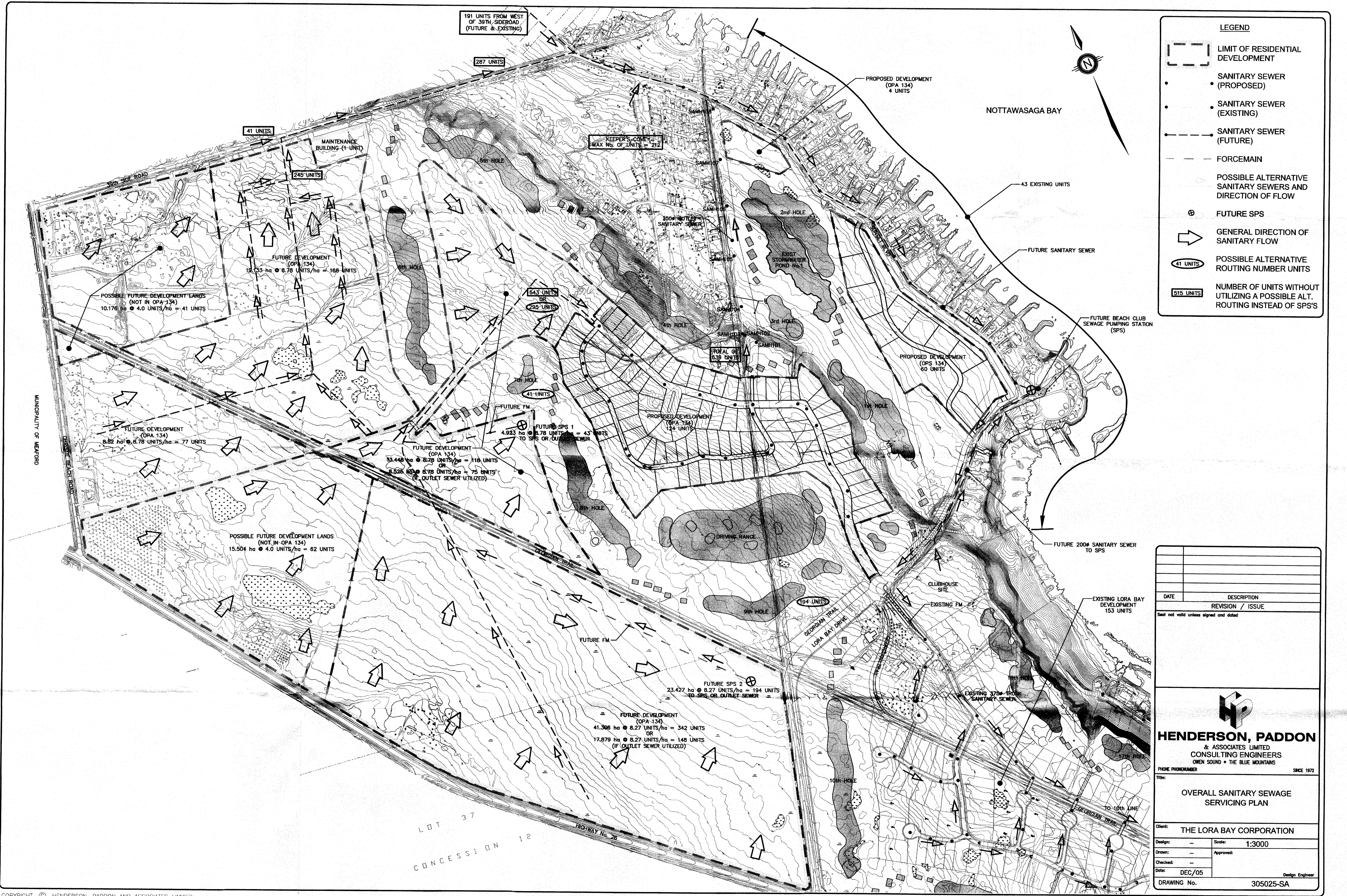
$M = 1 + \frac{14}{4 + \sqrt{P}}$ where P = population in 1000's

$Q(p) = \frac{PqM}{86.4}$ (L/s)

Q (i) = IA (L/s) where A = area in hectares

$Q(d) = Q(p) + Q(i)$ (L/s)

LOCATION			INDIVIDUAL		CUMULATIVE		Peaking factor M	Pop. flow Q(p) (L/s)	Peak extraneous flow Q(i) (L/s)	Peak design flow Q(d) (L/s)	Length (m)	PROPOSED SEWER						
STREET	FROM	TO	Pop.	Area A (hectares)	Pop.	Area A (hectares)						Pipe size (mm)	Type of pipe	Grade %	Capacity (L/s) <small>n=0.013</small>	Full flow velocity (m/s)	Actual velocity at Q(d)	
LANDRY LANE	SAMH 202	SAMH 201	3	-	71	-	4.28	1.58	0.23	1.81	43.05	200	PVC	2.00	48.51	1.49		
LANDRY LANE	SAMH 201	SAMH 101	7	-	78	-	4.27	1.73	0.25	1.98	86.40	200	PVC	2.60	55.31	1.70		
LANDRY LANE	SAMH 207	SAMH 208	35	-	35	-	4.34	0.79	0.11	0.90	61.15	200	PVC	0.50	24.25	0.75		
LANDRY LANE	SAMH 208	SAMH 209	10	-	45	-	4.32	1.01	0.14	1.15	28.30	200	PVC	2.50	54.24	1.47		
LANDRY LANE	SAMH 209	SAMH 210	23	-	68	-	4.29	1.52	0.22	1.74	100.00	200	PVC	4.30	71.13	2.18		
LANDRY LANE	SAMH 210	SAMH 211	20	-	88	-	4.26	1.95	0.28	2.23	100.00	200	PVC	4.00	68.60	2.11		
LANDRY LANE	SAMH 211	SAMH 212	2	-	90	-	4.26	2.00	0.29	2.29	12.85	200	PVC	4.00	68.60	2.11		
LANDRY LANE	SAMH 212	SAMH 213	15	-	105	-	4.24	2.32	0.34	2.66	56.90	200	PVC	3.50	64.17	1.97		
LANDRY LANE	SAMH 213	SAMH 107	3	-	108	-	4.23	2.38	0.35	2.73	37.35	200	PVC	3.00	59.41	1.82		
EASEMENT	SAMH 107	SAMH 214	-	-	1666	-	3.65	31.67	5.34	37.01	51.35	250	PVC	0.36	37.29	0.75		
EASEMENT	SAMH 214	SAMH 1 (EXIST.)	-	-	1666	-	3.65	31.67	5.34	37.01	14.90	250	PVC	0.36	37.29	0.75		
MC CALLUM OBS.	SAMH 114	SAMH 104	15	-	15	-	4.40	0.34	0.05	0.39	45.20	200	PVC	2.50	54.24	1.47		
DESIGN								PROJECT								SHEET No.		
CHECKED																2 of 4		
DATE																		

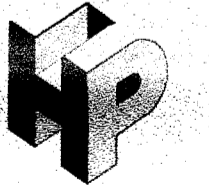


LEGEND

- [Dashed line] LIMIT OF RESIDENTIAL DEVELOPMENT
- SANITARY SEWER (PROPOSED)
- SANITARY SEWER (EXISTING)
- - - SANITARY SEWER (FUTURE)
- - - FORCEMAIN
- POSSIBLE ALTERNATIVE SANITARY SEWERS AND DIRECTION OF FLOW
- ⊕ FUTURE SPS
- ➔ GENERAL DIRECTION OF SANITARY FLOW
- (41 UNITS) POSSIBLE ALTERNATIVE ROUTING NUMBER UNITS
- (515 UNITS) NUMBER OF UNITS WITHOUT UTILIZING A POSSIBLE ALT. ROUTING INSTEAD OF SPS'S

DATE	DESCRIPTION

Seal not valid unless signed and dated

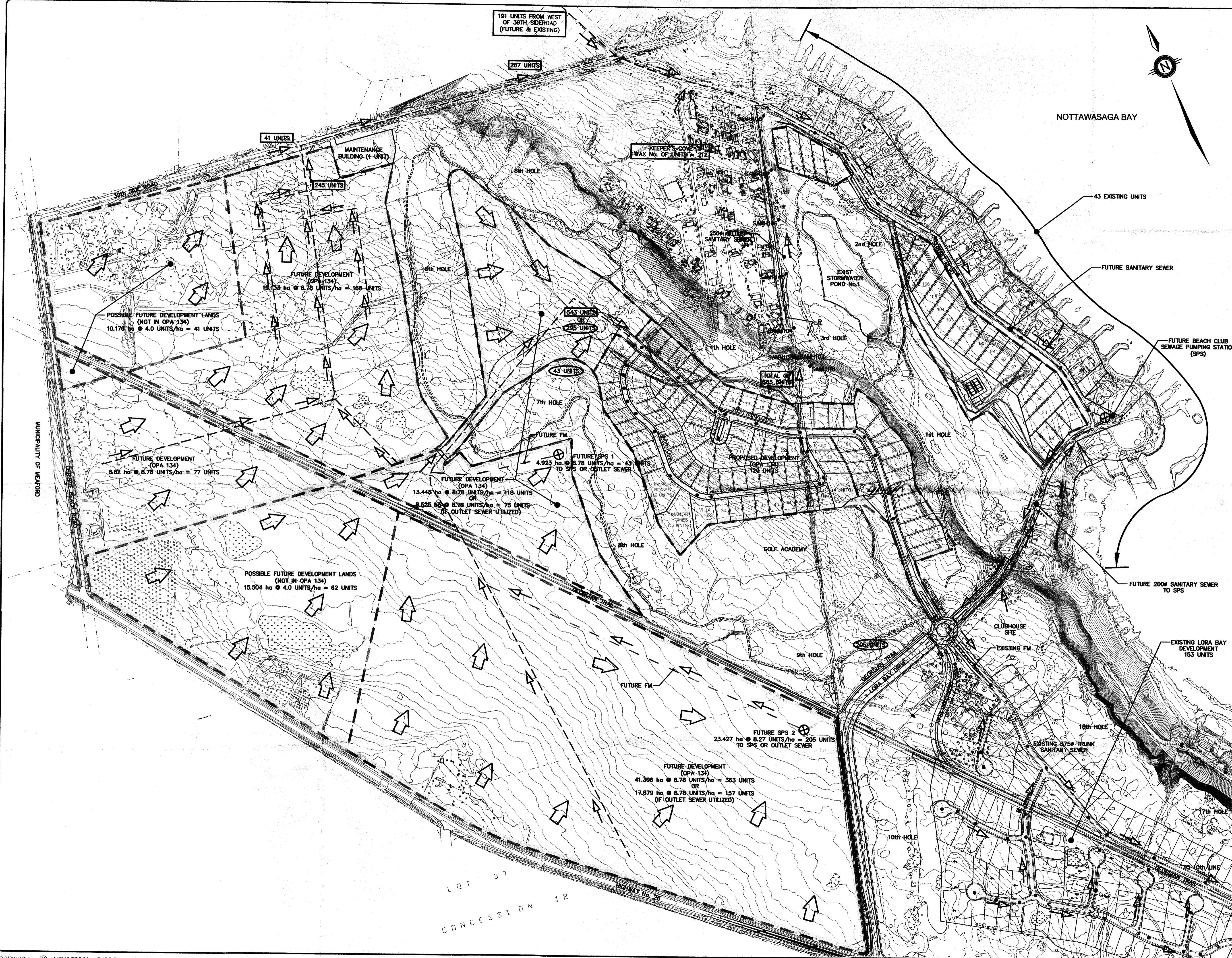

HENDERSON, PADDON
 & ASSOCIATES LIMITED
 CONSULTING ENGINEERS
 OWEN SOUND • THE BLUE MOUNTAINS
 PHONE NUMBER: _____ SINCE 1972

OVERALL SANITARY SEWAGE SERVICING PLAN

Client: **THE LORA BAY CORPORATION**

Design: -	Scale: 1:3000
Drawn: -	Approved: _____
Checked: -	
Date: DEC/05	<small>Design Engineer</small>

DRAWING No. **305025-SA**



LEGEND

- LIMIT OF RESIDENTIAL DEVELOPMENT
- SANITARY SEWER (PROPOSED)
- SANITARY SEWER (EXISTING)
- - - SANITARY SEWER (FUTURE)
- - - FORCEMAIN
- POSSIBLE ALTERNATIVE SANITARY SEWERS AND DIRECTION OF FLOW
- ⊕ FUTURE SPS
- ➡ GENERAL DIRECTION OF SANITARY FLOW
- (41 UNITS) POSSIBLE ALTERNATIVE ROUTING NUMBER UNITS
- (515 UNITS) NUMBER OF UNITS WITHOUT UTILIZING A POSSIBLE ALT. ROUTING INSTEAD OF SPS'S

NOTTAWASAGA BAY

43 EXISTING UNITS

FUTURE SANITARY SEWER

EXIST STORMWATER POND No.1

2nd HOLE

3rd HOLE

4th HOLE

5th HOLE

6th HOLE

7th HOLE

8th HOLE

9th HOLE

10th HOLE

11th HOLE

12th HOLE

13th HOLE

14th HOLE

15th HOLE

16th HOLE

17th HOLE

18th HOLE

19th HOLE

20th HOLE

CLUBHOUSE SITE

EXISTING FM

EXISTING 375+ TRUNK SANITARY SEWER

FUTURE BEACH CLUB SEWAGE PUMPING STATION (SPS)

FUTURE 200+ SANITARY SEWER TO SPS

EXISTING LORA BAY DEVELOPMENT 153 UNITS

LOT 37

CONCESSION 12

HIGHWAY No. 20

DATE	DESCRIPTION

Seal not valid unless signed and dated

HENDERSON, PADDON
 & ASSOCIATES LIMITED
 CONSULTING ENGINEERS
 OPEN SOUND • THE BLUE MOUNTAINS
 PHONE (519) 599-3785 SINCE 1972

Title: **OVERALL SANITARY SEWAGE SERVICING PLAN**

Client: **THE LORA BAY CORPORATION**

Design: -	Scale: 1:3000
Drawn: -	Approved:
Checked: -	
Date: FEB/07	Design Engineer
DRAWING No. 307005-SA	

Appendix D

CFCA Original Sanitary Design Sheet – Lora Bay Phase 4
CFCA Updated Sanitary Design Sheet – Site Only

LORA BAY PHASE 4

469-3061

SANITARY SEWER DESIGN SHEET (SITE ONLY)



Unit Type	PPU
Single & Semi Detached	2.3
Townhome & Apartment	2.3

Mannings "n":	0.013
Peak Factor (M):	1+(14/4+(P/1000)^0.5)
Residential Avg. Daily/Capita Flow (L/cap.d):	450
Commercial Avg. Daily/Capita Flow (m³/ha.d):	28
Institutional Avg. Daily/Capita Flow (L/s.UNIT):	1000
Infiltration Q (L/ha.s):	0.23
External Inflow & Infiltration Q (L/cap.d, per H&P servicing study)	277

DESIGNED BY: MVR
 CHECKED BY: BE
 DATE: 05-Nov-19
 REVISION NO.: 3
 REVISED BY: MVR
 DATE: 2020-04.30

CATCHMENT I.D.	STREET	FROM MH NO	TO MH NO	AREA (Ha)	SINGLE/SEMI UNITS	POP.	TOTAL TRIB. POP.	RESIDENTIAL PEAK FACTOR	RESIDENTIAL AVG. FLOW (l/s)	RESIDENTIAL MAX. FLOW (l/s)	MAX FLOW (l/s)	INFILT. (l/s)	TOTAL INFILT. (l/s)	TOTAL FLOW (l/s)	LENGTH (m)	PIPE DIAM. (mm)	UPPER INV. EL.	LOWER INV. EL.	UPPER OBV. EL.	LOWER OBV. EL.	SLOPE (%)	CAP. (l/s)	FULL FLOW VELOCITY (m/s)	GROUND UPPER	GROUND LOWER	COVER UPPER	COVER LOWER
101	Street A	MH10	MH10A	0.54	4	10	10.0	4.41	0.05	0.23	0.23	0.12	0.12	0.35	51.4	200	210.62	209.71	210.82	209.91	1.76%	43.51	1.39	213.60	212.91	2.78	3.00
102		MH10A	MH11	0.73	5	12	22.0	4.37	0.11	0.50	0.50	0.17	0.29	0.79	74.1	200	209.66	207.25	209.86	207.45	3.25%	59.13	1.88	212.91	210.44	3.05	2.99
103		MH11	MH11A	0.31	2	5	27.0	4.36	0.14	0.61	0.61	0.07	0.36	0.98	23.1	200	207.20	206.62	207.40	206.82	2.54%	52.27	1.66	210.44	209.82	3.04	3.00
104		MH11A	MH12	0.10	0	0	27.0	4.36	0.14	0.61	0.61	0.02	0.39	1.00	24.8	200	206.57	205.97	206.77	206.17	2.41%	50.92	1.62	209.82	209.18	3.06	3.01
		MH12	MH13	0.00	0	0	27.0	4.36	0.14	0.61	0.61	0.00	0.39	1.00	26.0	200	205.92	205.39	206.12	205.59	2.03%	46.73	1.49	209.18	208.68	3.06	3.09
105		MH13	MH14	1.73	43	99	126.0	4.21	0.66	2.77	2.77	0.40	0.78	3.55	19.7	200	205.31	205.21	205.51	205.41	0.50%	23.19	0.74	208.68	208.39	3.17	2.98
106		MH14	MH14A	0.60	4	10	136.0	4.20	0.71	2.98	2.98	0.14	0.92	3.90	63.2	200	205.16	204.84	205.36	205.04	0.50%	23.19	0.74	208.39	208.04	3.03	3.00
107		MH14A	MH15	0.68	4	10	146.0	4.19	0.76	3.19	3.19	0.16	1.08	4.27	53.5	200	204.79	204.52	204.99	204.72	0.50%	23.19	0.74	208.04	207.78	3.05	3.06
108		MH15	MH15A	0.18	1	3	149.0	4.19	0.78	3.25	3.25	0.04	1.12	4.37	18.9	200	204.47	204.38	204.67	204.58	0.50%	23.19	0.74	207.78	207.68	3.11	3.10
109		MH15A	MH16	0.22	1	3	152.0	4.19	0.79	3.32	3.32	0.05	1.17	4.49	18.5	200	204.33	204.24	204.53	204.44	0.50%	23.19	0.74	207.68	207.59	3.15	3.15
110	MH16	MH3	0.23	1	3	155.0	4.19	0.81	3.38	3.38	0.05	1.22	4.60	37.2	200	204.19	203.99	204.39	204.19	0.52%	23.65	0.75	207.59	207.51	3.21	3.32	
EXT	West Ridge Drive	MH9	MH8	-	-	0	0.0	4.50	0.00	0.00	0.00	0.00	0.00	0.00	14.1	250	214.48	213.88	214.73	214.13	4.20%	121.87	2.48	217.70	217.13	2.97	3.00
111	West Ridge Drive	MH8	MH7	0.34	1	3	3.0	4.45	0.02	0.07	0.07	0.08	0.08	0.15	53.4	250	213.83	211.64	214.08	211.89	4.11%	120.56	2.46	217.13	214.88	3.05	2.99
112		MH7	MH6	0.23	1	3	6.0	4.43	0.03	0.14	0.14	0.05	0.13	0.27	31.9	250	211.59	210.22	211.84	210.47	4.29%	123.17	2.51	214.88	213.55	3.04	3.08
100	Street A	MH10	MH6	0.19	1	3	3.0	4.45	0.02	0.07	0.07	0.04	0.04	0.11	36.1	200	210.62	210.26	210.82	210.46	1.00%	32.80	1.04	213.60	213.55	2.78	3.10
113	West Ridge Drive	MH6	MH5	0.46	3	7	16.0	4.39	0.08	0.37	0.37	0.11	0.28	0.65	60.4	250	210.17	207.76	210.42	208.01	3.99%	118.79	2.42	213.55	211.01	3.13	3.00
114		MH5	MH4	0.34	2	5	21.0	4.38	0.11	0.48	0.48	0.08	0.36	0.84	41.8	250	207.71	206.00	207.96	206.25	4.10%	120.41	2.45	211.01	209.25	3.05	3.00
115		MH4	MH3	0.37	2	5	26.0	4.36	0.14	0.59	0.59	0.09	0.44	1.03	41.8	250	205.95	204.25	206.20	204.50	4.06%	119.82	2.44	209.25	207.51	3.05	3.01
116	West Ridge Drive	MH3	MH2	0.40	2	5	186.0	4.16	0.97	4.03	4.03	0.09	1.76	5.79	41.8	250	203.91	203.70	204.16	203.95	0.50%	42.05	0.86	207.51	206.75	3.35	2.80
117		MH2	MH1	0.46	2	5	191.0	4.16	0.99	4.13	4.13	0.11	1.87	6.00	39.1	250	203.66	203.47	203.91	203.72	0.50%	42.05	0.86	206.75	206.71	2.84	2.99

Note: Refer to Appendix F for external sanitary analysis



**LORA BAY PHASE 4 BLOCK 39
 SANITARY SEWER DESIGN MODEL**

DESIGN: Z. Holland
 CHECK: A. Spencer
 UPDATED: June 25, 2021

N = 0.013
 Population = 2.3 p.p.u.

Peak Factor (M) = $1 + (14/4 + (P/1000)^{0.5})$
 Avg. Daily/Capita Flow = 450 L/cap.d
 Q infiltration = 0.23 L/ha.s

Units	FROM SAN MH	TO SAN MH	Catchment Area I.D.	Length (m)	Area (Ha)	Units	Pop.	TOTAL trib pop	Peak Factor	Avg. Flow (l/s)	Max Flow (l/s)	Infiltr. (l/s)	TOTAL Infiltr.	Combined (l/s)	Pipe Diam (mm)	Upper Inv. El.	Lower Inv. El.	Slope (%)	Cap. (l/s)	Vel. (m/s)	Ground Upper	Ground Lower	Cover Upper	Cover Lower
Block 1, 2	SANMH#8	SANMH#7	8	51.2	0.25	7	16	16	4.39	0.08	0.37	0.06	0.06	0.43	200	206.90	206.39	1.00%	32.80	1.04	210.01	209.75	2.91	3.16
Block 2, 3, 4	SANMH#9	SANMH#7	9	79.0	0.41	11	25	25	4.37	0.13	0.58	0.09	0.09	0.67	200	207.18	206.39	1.00%	32.80	1.04	210.15	209.75	2.77	3.16
-	SANMH#7	SANMH#6	7	21.5	0.04	0	0	41	4.33	0.22	0.93	0.01	0.16	1.09	200	206.31	206.20	0.51%	23.42	0.75	209.75	209.41	3.24	3.01
-	SANMH#6	SANMH#5	6	16.0	0.01	0	0	41	4.33	0.22	0.93	0.00	0.16	1.10	200	206.15	206.07	0.50%	23.19	0.74	209.41	209.16	3.06	2.89
Block 5	SANMH#13	SANMH#12	13	28.6	0.18	12	26	26	4.36	0.14	0.60	0.04	0.04	0.64	200	206.60	206.41	0.66%	26.65	0.85	208.11	207.96	1.31	1.35
-	SANMH#12	SANMH#10	11	8.2	0.01	0	0	26	4.36	0.14	0.60	0.00	0.04	0.64	200	206.38	206.29	1.08%	34.09	1.08	207.96	207.92	1.38	1.43
Block 6	SANMH#11	SANMH#10	12	39.1	0.19	5	12	12	4.41	0.06	0.26	0.04	0.04	0.31	200	206.49	206.29	0.50%	23.19	0.74	207.73	207.92	1.04	1.43
-	SANMH#10	SANMH#5	10	33.2	0.03	0	0	38	4.34	0.20	0.86	0.01	0.09	0.95	200	206.21	206.04	0.51%	23.42	0.75	207.92	209.16	1.51	2.92
Block 7	SANMH#5	SANMH#3	5	18.0	0.06	2	5	84	4.26	0.44	1.86	0.01	0.27	2.14	200	205.99	205.90	0.50%	23.19	0.74	209.16	209.38	2.97	3.28
Block 7	SANMH#4	SANMH#3	4	9.9	0.13	3	7	7	4.43	0.04	0.16	0.03	0.03	0.19	200	206.00	205.90	0.98%	32.47	1.03	209.37	209.38	3.17	3.28
-	SANMH#3	SANMH#2	3	11.1	0.02	0	0	91	4.25	0.47	2.01	0.00	0.31	2.32	200	205.82	205.77	0.41%	21.00	0.67	209.38	209.38	3.37	3.41
-	SANMH#2	SANMH#1	2	28.0	0.07	0	0	91	4.25	0.47	2.01	0.02	0.32	2.34	200	205.72	205.58	0.50%	23.19	0.74	209.38	208.68	3.46	2.90
-	SANMH#1	Sanitary Stub	1	11.7	0.01	0	0	91	4.25	0.47	2.01	0.00	0.32	2.34	200	205.50	205.43	0.50%	23.19	0.74	208.68	-	2.98	-

Appendix E

CFCA Original Storm Sewer Design Sheet – Lora Bay Phase 4
CFCA Original Interceptor Ditch Modelling
CFCA Original 900mm dia. Culvert Modelling
CFCA Original West Ridge Drive Sag/Low Point Modelling
CFCA Original Block 41 Ditch Modelling
CFCA Original Golf Course Ditch and Culvert Modelling
CFCA Original OTT HYMO Model Output (Ultimate Conditions)

LORA BAY PHASE 4
469-3061
STORM SEWER DESIGN SHEET



FREQUENCY - 5 YEARS - MTO LOOKUP TOOL			
Coef. A=	29.1	Coef. B=	-0.714
FREQUENCY - 100 YEARS - MTO LOOKUP TOOL			
Coef. A=	47.7	Coef. B=	-0.738

MATERIAL	
PVC	0.009
CONC.	0.013
CSP	0.024

DESIGNED BY: MVR
 CHECKED BY: BE
 DATE: 5-Nov-19
 REVISION NO.: 3
 REVISED BY: MVR
 DATE: 30-Apr-20

INITIAL TIME OF CONCENTRATION (minutes) = 15.00

CATCHMENT I.D.	STREET	FR MH NO	TO MH NO	5 YEAR RUN-OFF		100 YEAR RUN-OFF	DESIGN STORM	A x C		TIME OF CONC. (min.)	5 YEAR I (mm/hr)	5 YEAR Q (RUNOFF) (l/sec)	DESIGN FLOW (l/sec)	SLOPE (%)	PIPE DIA. (mm)	MANNING'S 'n'	VEL. (m/sec)	LENGTH (m)	TIME OF FLOW (min)	PIPE CAPACITY (l/sec)	CAPACITY (%)	PIPE INV ELEV.		PIPE OBV ELEV.		GROUND ELEV.		COVER	
				AREA (A) (Ha)	COEFF (C ₂)	COEFF (C ₂)		A x C	UPPER END													LOWER END	UPPER END	LOWER END	UPPER END	LOWER END	UPPER END	LOWER END	
201	Street A	CBMH#7	CBMH#8	0.31	0.45	0.56	5 year	0.14	0.14	15.00	78.30	30.37	30.37	3.25%	300	0.009	3.6	67.8	0.32	251.81	12%	210.65	208.45	210.95	208.75	212.38	210.21	1.43	1.46
202		CBMH#8	CBMH#9	0.47	0.45	0.56	5 year	0.21	0.35	15.32	77.14	75.27	75.27	2.57%	300	0.009	3.2	30.9	0.16	223.92	34%	208.40	207.61	208.70	207.91	210.21	209.42	1.51	1.51
203		CBMH#9	CBMH#10	0.14	0.45	0.56	5 year	0.06	0.41	15.48	76.56	88.11	88.11	1.94%	300	0.009	2.8	31.0	0.19	194.55	45%	207.56	206.96	207.86	207.26	209.42	208.78	1.56	1.52
204		CBMH#10	CBMH#11	0.98	0.65	0.81	5 year	0.64	1.05	15.67	75.90	221.77	221.77	1.56%	450	0.013	2.2	31.0	0.23	356.10	62%	206.81	206.32	207.26	206.77	208.78	208.36	1.53	1.59
205		CBMH#11	CBMH#12	0.31	0.45	0.56	5 year	0.14	1.19	15.90	75.12	248.60	248.60	0.55%	525	0.013	1.5	56.4	0.64	318.94	78%	206.25	205.94	206.77	206.46	208.36	208.00	1.59	1.54
206		CBMH#12	CBMH#13	0.61	0.45	0.56	5 year	0.27	1.47	16.54	73.03	297.45	297.45	0.45%	600	0.013	1.5	66.0	0.76	411.89	72%	205.86	205.56	206.46	206.16	208.00	207.68	1.54	1.52
207		CBMH#13	CBMH#14	0.78	0.45	0.56	5 year	0.35	1.82	17.29	70.74	357.14	357.14	0.45%	675	0.013	1.6	26.3	0.28	563.88	63%	205.49	205.37	206.16	206.05	207.68	207.56	1.52	1.51
208		CBMH#14	CBMH#5A	0.05	0.45	0.56	5 year	0.02	1.84	17.57	69.94	357.47	357.47	0.40%	675	0.013	1.5	35.2	0.39	531.63	67%	205.34	205.20	206.02	205.88	207.56	207.39	1.54	1.51
209		CBMH#5A	CBMH#5	0.24	0.45	0.56	5 year	0.11	1.95	17.96	68.84	372.51	372.51	0.35%	675	0.013	1.4	17.9	0.21	497.30	75%	205.17	205.11	205.85	205.78	207.39	207.26	1.54	1.48
Ext 1	West Ridge Drive	CBMH#1A	CBMH#1	6	0.65	0.81	5 year	3.90	3.90	15.00	78.30	848.93	848.93	3.86%	600	0.013	4.3	29.5	0.12	1206.34	70%	215.40	214.26	216.00	214.86	217.57	216.38	1.57	1.52
210		CBMH#1	CBMH#2A	0.09	0.45	0.56	5 year	0.04	3.94	15.12	77.87	853.07	853.07	4.14%	600	0.013	4.4	33.8	0.13	1249.33	68%	214.21	212.82	214.81	213.42	216.38	214.93	1.57	1.52
218		CBMH#2A	CBMH#2	0.08	0.45	0.56	5 year	0.04	3.98	15.24	77.41	855.72	855.72	4.19%	600	0.013	4.4	32.7	0.12	1256.85	68%	212.77	211.40	213.37	212.00	214.93	213.51	1.57	1.51
211		CBMH#2	CBMH#3	0.58	0.45	0.56	5 year	0.26	4.24	15.37	76.97	906.69	906.69	4.17%	600	0.013	4.4	50.5	0.19	1253.85	72%	211.35	209.24	211.95	209.84	213.51	211.36	1.56	1.52
212		CBMH#3	CBMH#4A	0.58	0.45	0.56	5 year	0.26	4.50	15.56	76.29	954.13	954.13	4.19%	600	0.013	4.4	30.4	0.11	1256.85	76%	209.19	207.92	209.79	208.52	211.36	210.03	1.57	1.51
219		CBMH#4A	CBMH#4	0.12	0.45	0.56	5 year	0.05	4.55	15.67	75.90	960.56	960.56	4.20%	600	0.013	4.5	32.5	0.12	1258.35	76%	207.87	206.51	208.47	207.11	210.03	208.62	1.56	1.52
213		CBMH#4	CBMH#5	0.33	0.45	0.56	5 year	0.15	4.70	15.79	75.48	986.43	986.43	3.89%	600	0.013	4.3	32.8	0.13	1211.02	81%	206.46	205.18	207.06	205.78	208.62	207.26	1.57	1.48
214	CBMH#5	CBMH#6A	0.18	0.45	0.56	5 year	0.08	6.73	18.18	68.26	1276.80	1276.80	0.70%	900	0.013	2.4	23.4	0.16	1514.61	84%	205.05	204.89	205.95	205.79	207.26	206.75	1.31	0.96	
215	CBMH#6A	CBMH#6	0.18	0.45	0.56	5 year	0.08	6.81	18.34	67.82	1283.92	1283.92	0.70%	900	0.013	2.4	26.0	0.18	1514.61	85%	204.86	204.68	205.76	205.58	206.75	206.59	0.99	1.01	
216	West Ridge Drive	DCBMH#7	CBMH#6	0.21	0.45	0.56	5 year	0.09	0.09	15.00	78.30	20.57	20.57	1.00%	300	0.009	2.0	6.9	0.06	139.68	15%	205.10	205.03	205.40	205.33	206.57	206.59	1.17	1.26
Ext 2	West Ridge Drive	DICB1	CBMH#6	0	0.45	0.56	25 year	0.00	0.00	15.00	78.30	0.00	1860.00	1.50%	900	0.013	3.5	10.8	0.05	2217.17	84%	204.83	204.67	205.73	205.57	206.30	206.59	0.57	1.02
217	West Ridge Drive	CBMH#6	Outfall	0.05	0.45	0.56	5 year	0.02	6.93	18.52	67.35	1296.80	3156.80	1.85%	1050	0.013	4.3	31.7	0.12	3714.19	85%	204.57	203.98	205.62	205.03	206.59	205.13	0.97	

Notes: 5 year runoff coefficient for catchment Ext 1 is a preliminary estimate based on higher density land use for future development parcels.
 Design flow for catchment Ext 2 (1860 L/s) based on 25 year SCS storm event runoff calculated for the Ultimate Conditions via Visual OTTHYMO model.
 Horizontal elliptical pipe (equivalent circular pipe size shown)

North Site Ditch - 100 YR SCS Storm, 0.5% Slope

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.00500	m/m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)
Discharge	2.05	m ³ /s

Results

Normal Depth	0.80	m
Flow Area	1.93	m ²
Wetted Perimeter	5.08	m
Hydraulic Radius	0.38	m
Top Width	4.81	m
Critical Depth	0.62	m
Critical Slope	0.01899	m/m
Velocity	1.06	m/s
Velocity Head	0.06	m
Specific Energy	0.86	m
Froude Number	0.53	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.80	m
Critical Depth	0.62	m
Channel Slope	0.00500	m/m
Critical Slope	0.01899	m/m

North Site Ditch - 100 YR SCS Storm, 0.5% Slope

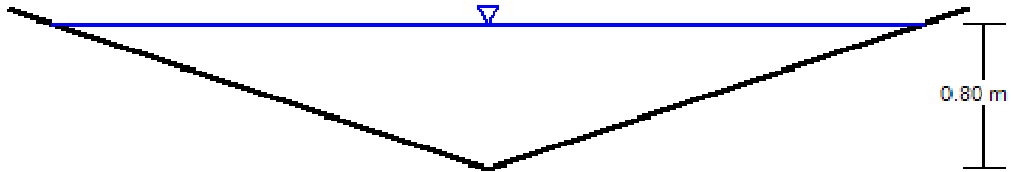
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.035
Channel Slope	0.00500 m/m
Normal Depth	0.80 m
Left Side Slope	3.00 m/m (H:V)
Right Side Slope	3.00 m/m (H:V)
Discharge	2.05 m ³ /s

Cross Section Image



V: 1
H: 1

North Site Ditch - 100 YR SCS Storm, 1.3% Slope

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.01300	m/m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)
Discharge	2.05	m ³ /s

Results

Normal Depth	0.67	m
Flow Area	1.35	m ²
Wetted Perimeter	4.24	m
Hydraulic Radius	0.32	m
Top Width	4.03	m
Critical Depth	0.62	m
Critical Slope	0.01899	m/m
Velocity	1.52	m/s
Velocity Head	0.12	m
Specific Energy	0.79	m
Froude Number	0.84	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.67	m
Critical Depth	0.62	m
Channel Slope	0.01300	m/m
Critical Slope	0.01899	m/m

North Site Ditch - 100 YR SCS Storm, 1.3% Slope

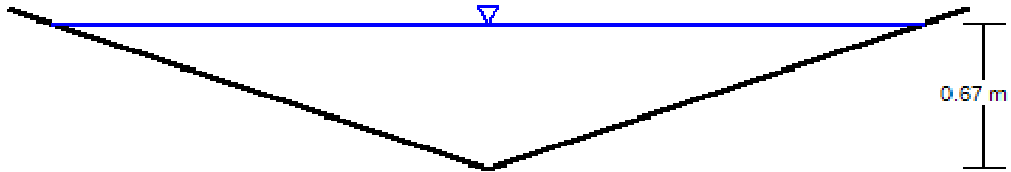
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.01300	m/m
Normal Depth	0.67	m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)
Discharge	2.05	m ³ /s

Cross Section Image



V: 1
H: 1

Downstream of 900mm dia. Culvert Crossing - 100 YR SCS HWL

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00500	m/m
Discharge	6.05	m ³ /s

Section Definitions

Station (m)	Elevation (m)
0+00	203.77
0+05	202.27
0+11	203.77

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 203.77)	(0+11, 203.77)	0.035

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	1.12	m
Elevation Range	202.27 to 203.77 m	
Flow Area	4.52	m ²
Wetted Perimeter	8.39	m
Hydraulic Radius	0.54	m
Top Width	8.08	m
Normal Depth	1.12	m
Critical Depth	0.89	m
Critical Slope	0.01651	m/m
Velocity	1.34	m/s

Downstream of 900mm dia. Culvert Crossing - 100 YR SCS HWL

Results

Velocity Head	0.09	m
Specific Energy	1.21	m
Froude Number	0.57	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	1.12	m
Critical Depth	0.89	m
Channel Slope	0.00500	m/m
Critical Slope	0.01651	m/m

Downstream of 900mm dia. Culvert - 100 YR SCS HWL

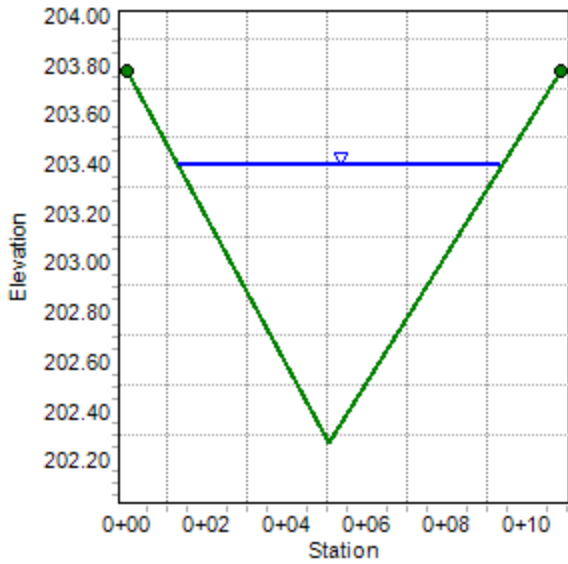
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope	0.00500	m/m
Normal Depth	1.12	m
Discharge	6.05	m ³ /s

Cross Section Image



Culvert Calculator Report

900mm dia. Culvert Crossing Lot 2 Phase 4

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	203.85 m	Headwater Depth/Height	1.65
Computed Headwater Elevation	203.85 m	Discharge	1.6320 m ³ /s
Inlet Control HW Elev.	203.61 m	Tailwater Elevation	203.39 m
Outlet Control HW Elev.	203.85 m	Control Type	Outlet Control

Grades			
Upstream Invert	202.34 m	Downstream Invert	202.29 m
Length	11.00 m	Constructed Slope	0.004545 m/m

Hydraulic Profile			
Profile	Pressure Profile	Depth, Downstream	1.10 m
Slope Type	N/A	Normal Depth	N/A m
Flow Regime	N/A	Critical Depth	0.75 m
Velocity Downstream	2.49 m/s	Critical Slope	0.007470 m/m

Section			
Section Shape	Circular	Mannings Coefficient	0.013
Section Material	Concrete	Span	0.91 m
Section Size	900 mm	Rise	0.91 m
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	203.85 m	Upstream Velocity Head	0.31 m
Ke	0.20	Entrance Loss	0.06 m

Inlet Control Properties			
Inlet Control HW Elev.	203.61 m	Flow Control	N/A
Inlet Type	Groove end projecting	Area Full	0.7 m ²
K	0.00450	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	3
C	0.03170	Equation Form	1
Y	0.69000		

Overtopping 900mm dia. Culvert Crossing - 100 YR SCS

Project Description

Solve For Headwater Elevation

Input Data

Discharge		0.42	m ³ /s
Crest Elevation		203.85	m
Tailwater Elevation		203.02	m
Crest Surface Type	Paved		
Crest Breadth		6.00	m
Crest Length		10.00	m

Results

Headwater Elevation		203.94	m
Headwater Height Above Crest		0.09	m
Tailwater Height Above Crest		-0.83	m
Weir Coefficient		1.64	SI
Submergence Factor		1.00	
Adjusted Weir Coefficient		1.64	SI
Flow Area		0.87	m ²
Velocity		0.48	m/s
Wetted Perimeter		10.17	m
Top Width		10.00	m

Overtopping 900mm dia. Culvert Crossing - 100 YR SCS

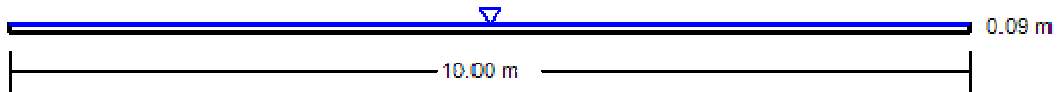
Project Description

Solve For Headwater Elevation

Input Data

Discharge		0.42	m ³ /s
Headwater Elevation		203.94	m
Crest Elevation		203.85	m
Tailwater Elevation		203.02	m
Crest Surface Type	Paved		
Crest Breadth		6.00	m
Crest Length		10.00	m

Cross Section Image



V: 1
H: 1

West Ridge Drive Overtopping - 10 YR SCS Storm

Project Description

Solve For Headwater Elevation

Input Data

Discharge		0.20	m ³ /s
Crest Elevation		206.65	m
Tailwater Elevation		206.65	m
Crest Surface Type	Paved		
Crest Breadth		20.00	m
Crest Length		58.00	m

Results

Headwater Elevation		206.67	m
Headwater Height Above Crest		0.02	m
Tailwater Height Above Crest		0.00	m
Weir Coefficient		1.61	SI
Submergence Factor		1.00	
Adjusted Weir Coefficient		1.61	SI
Flow Area		0.96	m ²
Velocity		0.21	m/s
Wetted Perimeter		58.03	m
Top Width		58.00	m

West Ridge Drive Overtopping - 10 YR SCS Storm

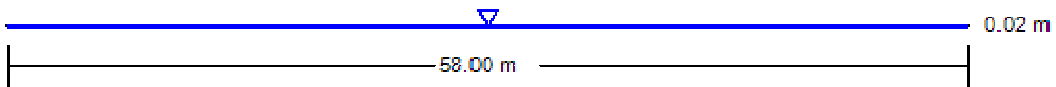
Project Description

Solve For Headwater Elevation

Input Data

Discharge		0.20	m³/s
Headwater Elevation		206.67	m
Crest Elevation		206.65	m
Tailwater Elevation		206.65	m
Crest Surface Type	Paved		
Crest Breadth		20.00	m
Crest Length		58.00	m

Cross Section Image



V: 1
H: 1

West Ridge Drive Overtopping - 25 YR SCS Storm

Project Description

Solve For Headwater Elevation

Input Data

Discharge		0.46	m ³ /s
Crest Elevation		206.65	m
Tailwater Elevation		206.65	m
Crest Surface Type	Paved		
Crest Breadth		20.00	m
Crest Length		58.00	m

Results

Headwater Elevation		206.68	m
Headwater Height Above Crest		0.03	m
Tailwater Height Above Crest		0.00	m
Weir Coefficient		1.62	SI
Submergence Factor		1.00	
Adjusted Weir Coefficient		1.62	SI
Flow Area		1.67	m ²
Velocity		0.27	m/s
Wetted Perimeter		58.06	m
Top Width		58.00	m

West Ridge Drive Overtopping - 25 YR SCS Storm

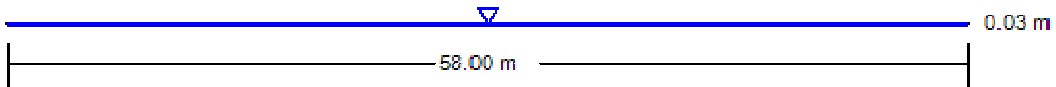
Project Description

Solve For Headwater Elevation

Input Data

Discharge		0.46	m ³ /s
Headwater Elevation		206.68	m
Crest Elevation		206.65	m
Tailwater Elevation		206.65	m
Crest Surface Type	Paved		
Crest Breadth		20.00	m
Crest Length		58.00	m

Cross Section Image



V: 1
H: 1

West Ridge Drive Overtopping - 25 YR CHI Storm

Project Description

Solve For Headwater Elevation

Input Data

Discharge		0.23	m ³ /s
Crest Elevation		206.65	m
Tailwater Elevation		206.65	m
Crest Surface Type	Paved		
Crest Breadth		20.00	m
Crest Length		58.00	m

Results

Headwater Elevation		206.67	m
Headwater Height Above Crest		0.02	m
Tailwater Height Above Crest		0.00	m
Weir Coefficient		1.61	SI
Submergence Factor		1.00	
Adjusted Weir Coefficient		1.61	SI
Flow Area		1.06	m ²
Velocity		0.22	m/s
Wetted Perimeter		58.04	m
Top Width		58.00	m

West Ridge Drive Overtopping - 25 YR CHI Storm

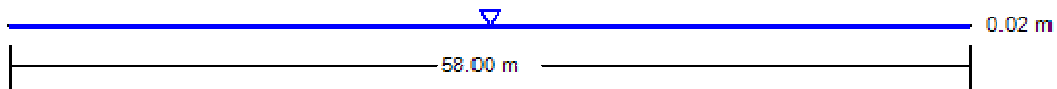
Project Description

Solve For Headwater Elevation

Input Data

Discharge		0.23	m ³ /s
Headwater Elevation		206.67	m
Crest Elevation		206.65	m
Tailwater Elevation		206.65	m
Crest Surface Type	Paved		
Crest Breadth		20.00	m
Crest Length		58.00	m

Cross Section Image



V: 1
H: 1

West Ridge Drive Overtopping - 50 YR SCS Storm

Project Description

Solve For Headwater Elevation

Input Data

Discharge		1.08	m ³ /s
Crest Elevation		206.65	m
Tailwater Elevation		206.65	m
Crest Surface Type	Paved		
Crest Breadth		20.00	m
Crest Length		58.00	m

Results

Headwater Elevation	206.70	m
Headwater Height Above Crest	0.05	m
Tailwater Height Above Crest	0.00	m
Weir Coefficient	1.63	SI
Submergence Factor	1.00	
Adjusted Weir Coefficient	1.63	SI
Flow Area	2.94	m ²
Velocity	0.37	m/s
Wetted Perimeter	58.10	m
Top Width	58.00	m

West Ridge Drive Overtopping - 50 YR SCS Storm

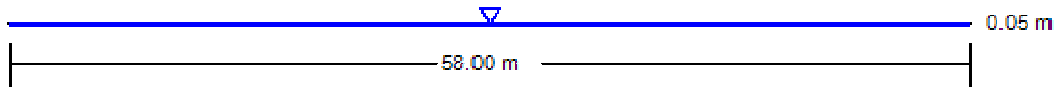
Project Description

Solve For Headwater Elevation

Input Data

Discharge		1.08	m ³ /s
Headwater Elevation		206.70	m
Crest Elevation		206.65	m
Tailwater Elevation		206.65	m
Crest Surface Type	Paved		
Crest Breadth		20.00	m
Crest Length		58.00	m

Cross Section Image



V: 1
H: 1

West Ridge Drive Overtopping - 100 YR CHI Storm

Project Description

Solve For Headwater Elevation

Input Data

Discharge		0.76	m ³ /s
Crest Elevation		206.65	m
Tailwater Elevation		206.65	m
Crest Surface Type	Paved		
Crest Breadth		20.00	m
Crest Length		58.00	m

Results

Headwater Elevation		206.69	m
Headwater Height Above Crest		0.04	m
Tailwater Height Above Crest		0.00	m
Weir Coefficient		1.62	SI
Submergence Factor		1.00	
Adjusted Weir Coefficient		1.62	SI
Flow Area		2.33	m ²
Velocity		0.33	m/s
Wetted Perimeter		58.08	m
Top Width		58.00	m

West Ridge Drive Overtopping - 100 YR CHI Storm

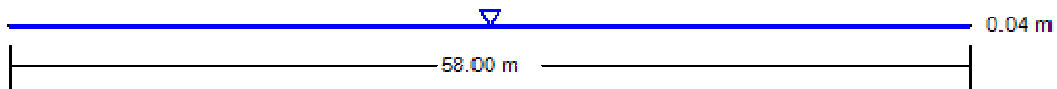
Project Description


Solve For Headwater Elevation

Input Data

Discharge		0.76	m ³ /s
Headwater Elevation		206.69	m
Crest Elevation		206.65	m
Tailwater Elevation		206.65	m
Crest Surface Type	Paved		
Crest Breadth		20.00	m
Crest Length		58.00	m

Cross Section Image



V: 1 
H: 1

West Ridge Drive Overtopping - 100 YR SCS Storm

Project Description

Solve For Headwater Elevation

Input Data

Discharge		1.57	m ³ /s
Crest Elevation		206.65	m
Tailwater Elevation		206.65	m
Crest Surface Type	Paved		
Crest Breadth		20.00	m
Crest Length		58.00	m

Results

Headwater Elevation		206.71	m
Headwater Height Above Crest		0.06	m
Tailwater Height Above Crest		0.00	m
Weir Coefficient		1.63	SI
Submergence Factor		1.00	
Adjusted Weir Coefficient		1.63	SI
Flow Area		3.77	m ²
Velocity		0.42	m/s
Wetted Perimeter		58.13	m
Top Width		58.00	m

West Ridge Drive Overtopping - 100 YR SCS Storm

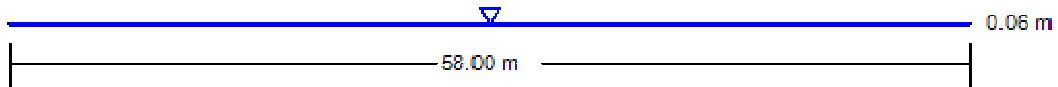
Project Description

Solve For Headwater Elevation

Input Data

Discharge		1.57	m ³ /s
Headwater Elevation		206.71	m
Crest Elevation		206.65	m
Tailwater Elevation		206.65	m
Crest Surface Type	Paved		
Crest Breadth		20.00	m
Crest Length		58.00	m

Cross Section Image



V: 1
H: 1

Block 41 Trapezoidal Ditch at Headwall - 100 YR SCS Storm

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.04700	m/m
Left Side Slope	2.00	m/m (H:V)
Right Side Slope	2.00	m/m (H:V)
Bottom Width	3.00	m
Discharge	4.34	m ³ /s

Results

Normal Depth	0.40	m
Flow Area	1.51	m ²
Wetted Perimeter	4.78	m
Hydraulic Radius	0.32	m
Top Width	4.59	m
Critical Depth	0.53	m
Critical Slope	0.01711	m/m
Velocity	2.87	m/s
Velocity Head	0.42	m
Specific Energy	0.82	m
Froude Number	1.60	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.40	m
Critical Depth	0.53	m
Channel Slope	0.04700	m/m

Block 41 Trapezoidal Ditch at Headwall - 100 YR SCS Storm

GVF Output Data

Critical Slope 0.01711 m/m

Block 41 Trapezoidal Ditch at Headwall - 100 YR SCS Storm

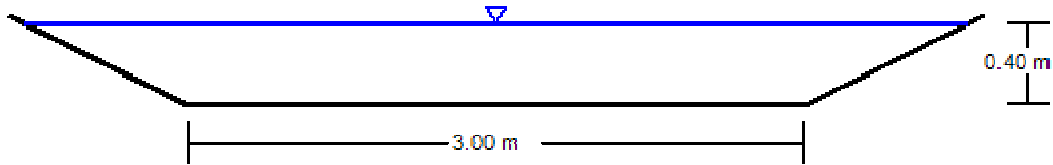
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.035
Channel Slope	0.04700 m/m
Normal Depth	0.40 m
Left Side Slope	2.00 m/m (H:V)
Right Side Slope	2.00 m/m (H:V)
Bottom Width	3.00 m
Discharge	4.34 m ³ /s

Cross Section Image



V: 1
H: 1

Block 41 Trapezoidal Ditch at Confluence - 100 YR SCS Storm

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.04700	m/m
Left Side Slope	2.00	m/m (H:V)
Right Side Slope	2.00	m/m (H:V)
Bottom Width	2.20	m
Discharge	6.05	m ³ /s

Results

Normal Depth	0.55	m
Flow Area	1.83	m ²
Wetted Perimeter	4.67	m
Hydraulic Radius	0.39	m
Top Width	4.41	m
Critical Depth	0.73	m
Critical Slope	0.01627	m/m
Velocity	3.31	m/s
Velocity Head	0.56	m
Specific Energy	1.11	m
Froude Number	1.64	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.55	m
Critical Depth	0.73	m
Channel Slope	0.04700	m/m

Block 41 Trapezoidal Ditch at Confluence - 100 YR SCS Storm

GVF Output Data

Critical Slope 0.01627 m/m

Block 41 Trapezoidal Ditch at Confluence - 100 YR SCS Storm

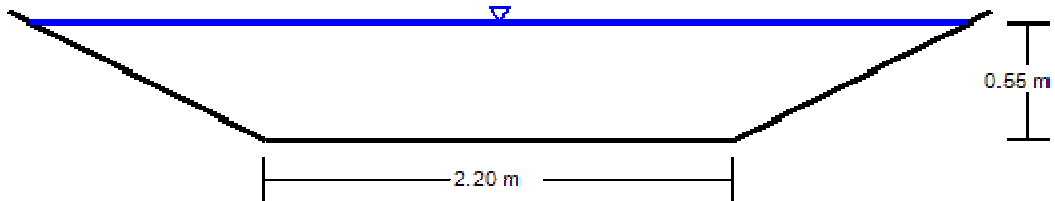
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.035
Channel Slope	0.04700 m/m
Normal Depth	0.55 m
Left Side Slope	2.00 m/m (H:V)
Right Side Slope	2.00 m/m (H:V)
Bottom Width	2.20 m
Discharge	6.05 m ³ /s

Cross Section Image



V: 1
H: 1

Ditch to Pond - 100 YR SCS Storm

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.00500	m/m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)
Discharge	6.05	m ³ /s

Results

Normal Depth	1.20	m
Flow Area	4.35	m ²
Wetted Perimeter	7.62	m
Hydraulic Radius	0.57	m
Top Width	7.22	m
Critical Depth	0.96	m
Critical Slope	0.01644	m/m
Velocity	1.39	m/s
Velocity Head	0.10	m
Specific Energy	1.30	m
Froude Number	0.57	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	1.20	m
Critical Depth	0.96	m
Channel Slope	0.00500	m/m
Critical Slope	0.01644	m/m

Ditch to Pond - 100 YR SCS Storm

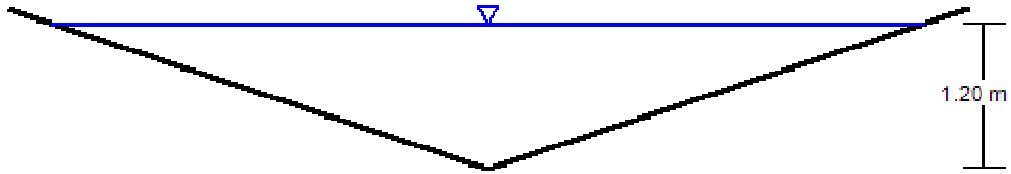
Project Description


Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.00500	m/m
Normal Depth	1.20	m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)
Discharge	6.05	m ³ /s

Cross Section Image



V: 1 
H: 1

825mm dia. Culverts - 100 YR SCS Storm Downstream Culvert HWL

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.070	
Channel Slope	0.03200	m/m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)
Bottom Width	7.40	m
Discharge	9.14	m ³ /s

Results

Normal Depth	0.61	m
Flow Area	5.66	m ²
Wetted Perimeter	11.28	m
Hydraulic Radius	0.50	m
Top Width	11.08	m
Critical Depth	0.50	m
Critical Slope	0.06507	m/m
Velocity	1.61	m/s
Velocity Head	0.13	m
Specific Energy	0.75	m
Froude Number	0.72	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.61	m
Critical Depth	0.50	m
Channel Slope	0.03200	m/m

825mm dia. Culverts - 100 YR SCS Storm Downstream Culvert HWL

GVF Output Data

Critical Slope 0.06507 m/m

825mm dia. Culverts - 100 YR SCS Storm Downstream Culvert HWL

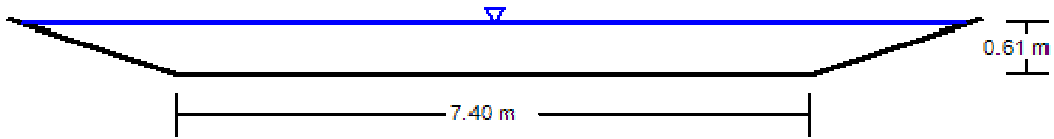
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.070
Channel Slope	0.03200 m/m
Normal Depth	0.61 m
Left Side Slope	3.00 m/m (H:V)
Right Side Slope	3.00 m/m (H:V)
Bottom Width	7.40 m
Discharge	9.14 m ³ /s

Cross Section Image



V: 1
H: 1

Culvert Calculator Report

Triple 825mm dia. Culvert Crossing Lot 13 Phase 3

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	199.75 m	Headwater Depth/Height	1.28
Computed Headwater Elevation	199.75 m	Discharge	3.5839 m ³ /s
Inlet Control HW Elev.	199.74 m	Tailwater Elevation	199.09 m
Outlet Control HW Elev.	199.75 m	Control Type	Outlet Control

Grades			
Upstream Invert	198.68 m	Downstream Invert	198.48 m
Length	10.00 m	Constructed Slope	0.018182 m/m

Hydraulic Profile			
Profile	M2	Depth, Downstream	0.66 m
Slope Type	Mild	Normal Depth	N/A m
Flow Regime	Subcritical	Critical Depth	0.66 m
Velocity Downstream	2.57 m/s	Critical Slope	0.023602 m/m

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	0.84 m
Section Size	825 mm	Rise	0.84 m
Number Sections	3		

Outlet Control Properties			
Outlet Control HW Elev.	199.75 m	Upstream Velocity Head	0.27 m
Ke	0.20	Entrance Loss	0.05 m

Inlet Control Properties			
Inlet Control HW Elev.	199.74 m	Flow Control	N/A
Inlet Type	Beveled ring, 33.7° (1.5:1) bevels	Area Full	1.7 m ²
K	0.00180	HDS 5 Chart	3
M	2.50000	HDS 5 Scale	B
C	0.02430	Equation Form	1
Y	0.83000		

825mm dia. Culverts - 100 YR SCS Storm Downstream Sag HWL

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.070	
Channel Slope	0.06400	m/m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)
Bottom Width	2.90	m
Discharge	9.14	m ³ /s

Results

Normal Depth	0.76	m
Flow Area	3.95	m ²
Wetted Perimeter	7.72	m
Hydraulic Radius	0.51	m
Top Width	7.47	m
Critical Depth	0.77	m
Critical Slope	0.06192	m/m
Velocity	2.31	m/s
Velocity Head	0.27	m
Specific Energy	1.03	m
Froude Number	1.02	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.76	m
Critical Depth	0.77	m
Channel Slope	0.06400	m/m

825mm dia. Culverts - 100 YR SCS Storm Downstream Sag HWL

GVF Output Data

Critical Slope 0.06192 m/m

825mm dia. Culverts - 100 YR SCS Storm Downstream Sag HWL

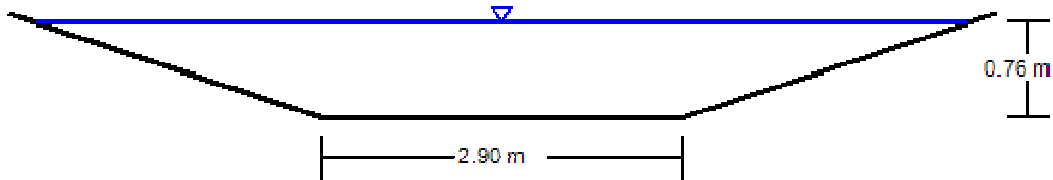
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.070
Channel Slope	0.06400 m/m
Normal Depth	0.76 m
Left Side Slope	3.00 m/m (H:V)
Right Side Slope	3.00 m/m (H:V)
Bottom Width	2.90 m
Discharge	9.14 m ³ /s

Cross Section Image



V: 1
H: 1

825mm dia. Culverts - 25 YR SCS Storm Sag Overtop HWL

Project Description

Solve For Headwater Elevation

Input Data

Discharge		0.99	m ³ /s
Crest Elevation		199.75	m
Tailwater Elevation		199.89	m
Crest Surface Type	Paved		
Crest Breadth		6.00	m
Crest Length		10.00	m

Results

Headwater Elevation		199.91	m
Headwater Height Above Crest		0.16	m
Tailwater Height Above Crest		0.14	m
Weir Coefficient		1.66	SI
Submergence Factor		0.95	
Adjusted Weir Coefficient		1.58	SI
Flow Area		1.58	m ²
Velocity		0.63	m/s
Wetted Perimeter		10.32	m
Top Width		10.00	m

825mm dia. Culverts - 25 YR SCS Storm Sag Overtop HWL

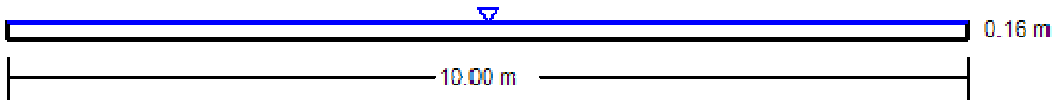
Project Description

Solve For Headwater Elevation

Input Data

Discharge		0.99	m ³ /s
Headwater Elevation		199.91	m
Crest Elevation		199.75	m
Tailwater Elevation		199.89	m
Crest Surface Type	Paved		
Crest Breadth		6.00	m
Crest Length		10.00	m

Cross Section Image



V: 1
H: 1

825mm dia. Culverts - 50 YR SCS Storm Sag Overtop HWL

Project Description

Solve For Headwater Elevation

Input Data

Discharge		1.84	m ³ /s
Crest Elevation		199.75	m
Tailwater Elevation		199.89	m
Crest Surface Type	Paved		
Crest Breadth		6.00	m
Crest Length		10.00	m

Results

Headwater Elevation		199.98	m
Headwater Height Above Crest		0.23	m
Tailwater Height Above Crest		0.14	m
Weir Coefficient		1.67	SI
Submergence Factor		1.00	
Adjusted Weir Coefficient		1.67	SI
Flow Area		2.30	m ²
Velocity		0.80	m/s
Wetted Perimeter		10.46	m
Top Width		10.00	m

825mm dia. Culverts - 50 YR SCS Storm Sag Overtop HWL

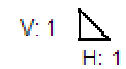
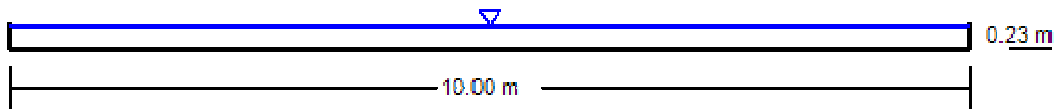
Project Description

Solve For Headwater Elevation

Input Data

Discharge		1.84	m ³ /s
Headwater Elevation		199.98	m
Crest Elevation		199.75	m
Tailwater Elevation		199.89	m
Crest Surface Type	Paved		
Crest Breadth		6.00	m
Crest Length		10.00	m

Cross Section Image



825mm dia. Culverts - 100 YR CHI Storm Sag Overtop HWL

Project Description

Solve For Headwater Elevation

Input Data

Discharge		1.02	m ³ /s
Crest Elevation		199.75	m
Tailwater Elevation		199.89	m
Crest Surface Type	Paved		
Crest Breadth		6.00	m
Crest Length		10.00	m

Results

Headwater Elevation		199.91	m
Headwater Height Above Crest		0.16	m
Tailwater Height Above Crest		0.14	m
Weir Coefficient		1.66	SI
Submergence Factor		0.97	
Adjusted Weir Coefficient		1.60	SI
Flow Area		1.59	m ²
Velocity		0.64	m/s
Wetted Perimeter		10.32	m
Top Width		10.00	m

825mm dia. Culverts - 100 YR CHI Storm Sag Overtop HWL

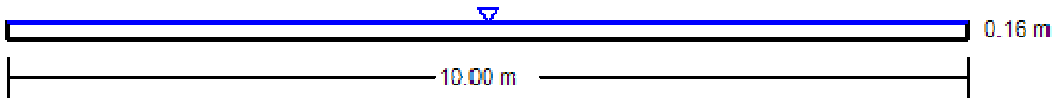
Project Description

Solve For Headwater Elevation

Input Data

Discharge		1.02	m ³ /s
Headwater Elevation		199.91	m
Crest Elevation		199.75	m
Tailwater Elevation		199.89	m
Crest Surface Type	Paved		
Crest Breadth		6.00	m
Crest Length		10.00	m

Cross Section Image



V: 1
H: 1

825mm dia. Culverts - 100 YR SCS Storm Sag Overtop HWL

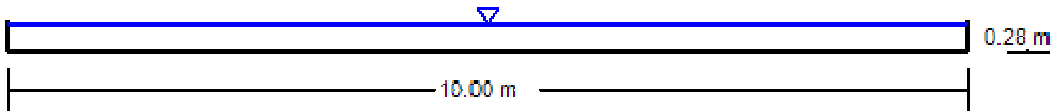
Project Description

Solve For Headwater Elevation

Input Data

Discharge		2.47	m ³ /s
Headwater Elevation		200.03	m
Crest Elevation		199.75	m
Tailwater Elevation		199.89	m
Crest Surface Type	Paved		
Crest Breadth		6.00	m
Crest Length		10.00	m

Cross Section Image



V: 1
H: 1

=====

V V I SSSSS U U A L (v 6.0.2001)
V V I SS U U A A L
V V I SS U U A A A A A L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL

000 TTTTT TTTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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***** SUMMARY OUTPUT *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.0\VO2\voin.dat

Output filename:

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Summary filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\ac
dd51a6-24e8-47f9-8b28-316036924232\sce

DATE: 04-29-2020

TIME: 09:33:02

USER:

COMMENTS: _____

** SIMULATION : TOBM-2yr **

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
		min	ha	cms	hrs	mm		cms

START @ 0.00 hrs

READ STORM 5.0

[Ptot= 39.93 mm]
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remark: TOBM-2yr

*
** CALIB NASHYD 0101 1 5.0 43.80 0.84 1.92 10.41 0.26 0.000
[CN=77.5]
[N = 3.0:Tp 0.41]
*
* CHANNEL[2: 0101] 0606 1 5.0 43.80 0.83 2.00 10.41 n/a 0.000
*
** CALIB NASHYD 0104 1 5.0 17.70 0.15 2.17 6.15 0.15 0.000
[CN=68.5]
[N = 3.0:Tp 0.56]
*
* ADD [0104+ 0606] 0804 3 5.0 61.50 0.98 2.00 9.18 n/a 0.000
*
* CHANNEL[2: 0804] 0604 1 5.0 61.50 0.96 2.08 9.18 n/a 0.000
*
** CALIB NASHYD 0102 1 5.0 71.90 0.91 2.08 8.34 0.21 0.000
[CN=74.2]
[N = 3.0:Tp 0.53]
*
* CHANNEL[2: 0102] 0600 1 5.0 71.90 0.89 2.25 8.34 n/a 0.000
*
** CALIB NASHYD 0103 1 5.0 18.00 0.13 2.42 5.89 0.15 0.000
[CN=67.1]
[N = 3.0:Tp 0.74]
*
* ADD [0103+ 0600] 0805 3 5.0 89.90 1.01 2.25 7.85 n/a 0.000
*
* ADD [0604+ 0805] 0806 3 5.0 151.40 1.95 2.17 8.39 n/a 0.000
*
* CHANNEL[2: 0806] 0601 1 5.0 151.40 1.94 2.25 8.39 n/a 0.000
*
** CALIB NASHYD 2014 1 5.0 4.08 0.02 2.00 3.19 0.08 0.000
[CN=45.3]
[N = 3.0:Tp 0.48]
*
* ADD [2014+ 0601] 8021 3 5.0 155.48 1.96 2.17 8.25 n/a 0.000
*
** CALIB NASHYD 2015 1 5.0 8.13 0.09 2.17 7.71 0.19 0.000
[CN=67.6]
[N = 3.0:Tp 0.62]
*
** CALIB STANDHYD 2022 1 5.0 16.01 1.25 1.33 17.16 0.43 0.000
[I%=35.0:S%= 2.00]
*

*	ADD [2015+ 2022]	0802	3	5.0	24.14	1.26	1.33	13.98	n/a	0.000
*	ADD [0802+ 8021]	0802	1	5.0	179.62	2.24	2.17	9.02	n/a	0.000
*	CHANNEL [2: 0802]	0602	1	5.0	179.62	2.24	2.17	9.02	n/a	0.000
**	CALIB NASHYD [CN=81.8 [N = 3.0:Tp 0.75]	2016	1	5.0	9.08	0.16	2.33	13.62	0.34	0.000
*	ADD [2016+ 0602]	0807	3	5.0	188.70	2.39	2.17	9.24	n/a	0.000
*	CHANNEL [2: 0807]	0603	1	5.0	188.70	2.39	2.25	9.24	n/a	0.000
**	CALIB NASHYD [CN=78.4 [N = 3.0:Tp 0.72]	2017	1	5.0	4.38	0.07	2.33	11.35	0.28	0.000
*	ADD [2017+ 0603]	8031	3	5.0	193.08	2.45	2.25	9.29	n/a	0.000
**	CALIB NASHYD [CN=76.8 [N = 3.0:Tp 0.56]	0106	1	5.0	74.80	1.07	2.17	9.58	0.24	0.000
*	SHIFT [2: 0106] [SHIFT= 72.7 min]	0906	1	5.0	74.80	1.07	3.33	9.58	n/a	0.000
**	CALIB NASHYD [CN=79.1 [N = 3.0:Tp 0.45]	0105	1	5.0	27.40	0.48	2.00	10.32	0.26	0.000
*	ADD [0105+ 0906]	0808	3	5.0	102.20	1.25	3.25	9.78	n/a	0.000
*	PIPE [2: 0808]	0702	1	5.0	102.20	1.24	3.25	9.78	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2024	1	5.0	10.71	0.92	1.33	23.24	0.58	0.000
*	ADD [2024+ 0702]	0809	3	5.0	112.91	1.32	3.25	11.06	n/a	0.000
*	PIPE [2: 0809]	0703	1	5.0	112.91	1.32	3.33	11.06	n/a	0.000
*	PIPE [2: 0703]	0704	1	5.0	112.91	1.32	3.33	11.06	n/a	0.000
*	CALIB NASHYD [CN=43.9 [N = 3.0:Tp 0.47]	2018	1	5.0	9.17	0.05	2.00	3.12	0.08	0.000
*	PIPE [2: 2018]	0701	1	5.0	9.17	0.05	2.08	3.12	n/a	0.000

*	CALIB NASHYD [CN=72.5 [N = 3.0:Tp 0.66]	2012	1	5.0	8.21	0.10	2.25	8.75	0.22	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2028	1	5.0	6.70	0.67	1.33	26.96	0.68	0.000
*	ADD [2012+ 2028]	0814	3	5.0	14.91	0.67	1.33	16.93	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2025	1	5.0	6.41	0.58	1.33	23.24	0.58	0.000
*	ADD [2025+ 0814]	0801	3	5.0	21.32	1.25	1.33	18.83	n/a	0.000
*	CALIB NASHYD [CN=79.0 [N = 3.0:Tp 0.48]	20112	1	5.0	5.67	0.12	2.00	11.91	0.30	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2026	1	5.0	4.59	0.47	1.33	26.96	0.68	0.000
*	ADD [20112+ 2026]	0811	3	5.0	10.26	0.48	1.33	18.64	n/a	0.000
*	CHANNEL [2: 0811]	0607	1	5.0	10.26	0.40	1.50	18.64	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2027	1	5.0	2.09	0.23	1.33	26.96	0.68	0.000
*	ADD [2027+ 0607]	0812	3	5.0	12.35	0.56	1.50	20.05	n/a	0.000
*	CHANNEL [2: 0812]	0608	1	5.0	12.35	0.52	1.58	20.03	n/a	0.000
*	CALIB NASHYD [CN=80.8 [N = 3.0:Tp 0.37]	2031	1	5.0	4.00	0.10	1.83	12.24	0.31	0.000
*	ADD [2031+ 0608]	0813	3	5.0	16.35	0.60	1.67	18.12	n/a	0.000
*	ADD [0813+ 0801]	0813	1	5.0	37.67	1.46	1.33	18.52	n/a	0.000
*	CHANNEL [2: 0813]	0609	1	5.0	37.67	1.46	1.50	18.52	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2023	1	5.0	12.60	1.06	1.33	23.24	0.58	0.000
*	ADD [2023+ 0609]	0815	3	5.0	50.27	2.30	1.42	19.70	n/a	0.000
*	ADD [0815+ 0701]	0815	1	5.0	59.44	2.30	1.42	17.15	n/a	0.000
*	CALIB NASHYD	0301	1	5.0	6.80	0.77	1.33	17.37	0.44	0.000

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[CN=91.7
[ N = 3.0:Tp 0.05]
*
ADD [ 0301+ 0704] 0803 3 5.0 119.71 1.35 3.33 11.41 n/a 0.000
*
ADD [ 0803+ 8031] 0803 1 5.0 312.79 3.21 2.17 10.10 n/a 0.000
*
ADD [ 0803+ 0815] 0803 3 5.0 372.23 4.67 1.42 11.23 n/a 0.000
*
** Reservoir
OUTFLOW: 0501 1 5.0 372.23 2.00 4.08 11.19 n/a 0.000
*
* CALIB NASHYD 2032 1 5.0 1.65 0.05 1.50 9.41 0.24 0.000
[CN=76.2
[ N = 3.0:Tp 0.15]
*
CHANNEL[ 2: 2032] 0605 1 5.0 1.65 0.03 1.83 9.22 n/a 0.000
*
* CALIB NASHYD 2035 1 5.0 0.38 0.01 1.75 10.59 0.27 0.000
[CN=76.0
[ N = 3.0:Tp 0.32]
*
* CALIB NASHYD 2036 1 5.0 0.42 0.02 1.42 10.20 0.26 0.000
[CN=76.0
[ N = 3.0:Tp 0.09]
*
* CALIB STANDHYD 2034 1 5.0 2.49 0.30 1.33 25.53 0.64 0.000
[I%=43.0:S%= 2.00]
*
* CALIB STANDHYD 2033 1 5.0 3.26 0.36 1.33 24.86 0.62 0.000
[I%=40.3:S%= 2.00]
*
ADD [ 2033+ 2034] 0810 3 5.0 5.75 0.67 1.33 25.15 n/a 0.000
*
ADD [ 0810+ 2035] 0810 1 5.0 6.13 0.67 1.33 24.25 n/a 0.000
*
ADD [ 0810+ 2036] 0810 3 5.0 6.55 0.68 1.33 23.35 n/a 0.000
*
ADD [ 0810+ 0501] 0810 1 5.0 378.78 2.03 4.00 11.40 n/a 0.000
*
ADD [ 0810+ 0605] 0810 3 5.0 380.43 2.03 4.00 11.39 n/a 0.000
*
FINISH
=====
=====

```


*	ADD [2015+ 2022]	0802	3	5.0	24.14	1.75	1.33	19.94	n/a	0.000
*	ADD [0802+ 8021]	0802	1	5.0	179.62	3.98	2.17	14.78	n/a	0.000
*	CHANNEL [2: 0802]	0602	1	5.0	179.62	3.98	2.17	14.78	n/a	0.000
*	CALIB NASHYD [CN=81.8 [N = 3.0:Tp 0.75]	2016	1	5.0	9.08	0.26	2.33	21.33	0.41	0.000
*	ADD [2016+ 0602]	0807	3	5.0	188.70	4.24	2.17	15.09	n/a	0.000
*	CHANNEL [2: 0807]	0603	1	5.0	188.70	4.23	2.17	15.09	n/a	0.000
*	CALIB NASHYD [CN=78.4 [N = 3.0:Tp 0.72]	2017	1	5.0	4.38	0.11	2.25	18.26	0.35	0.000
*	ADD [2017+ 0603]	8031	3	5.0	193.08	4.34	2.17	15.17	n/a	0.000
*	CALIB NASHYD [CN=76.8 [N = 3.0:Tp 0.56]	0106	1	5.0	74.80	1.91	2.08	15.99	0.31	0.000
*	SHIFT [2: 0106] [SHIFT= 72.7 min]	0906	1	5.0	74.80	1.91	3.25	15.99	n/a	0.000
*	CALIB NASHYD [CN=79.1 [N = 3.0:Tp 0.45]	0105	1	5.0	27.40	0.87	1.92	17.16	0.33	0.000
*	ADD [0105+ 0906]	0808	3	5.0	102.20	2.18	3.25	16.31	n/a	0.000
*	PIPE [2: 0808]	0702	1	5.0	102.20	2.18	3.25	16.31	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2024	1	5.0	10.71	1.34	1.33	32.52	0.63	0.000
*	ADD [2024+ 0702]	0809	3	5.0	112.91	2.27	3.25	17.84	n/a	0.000
*	PIPE [2: 0809]	0703	1	5.0	112.91	2.27	3.25	17.84	n/a	0.000
*	PIPE [2: 0703]	0704	1	5.0	112.91	2.26	3.33	17.84	n/a	0.000
*	CALIB NASHYD [CN=43.9 [N = 3.0:Tp 0.47]	2018	1	5.0	9.17	0.09	2.00	5.49	0.11	0.000
*	PIPE [2: 2018]	0701	1	5.0	9.17	0.09	2.08	5.49	n/a	0.000

*	CALIB NASHYD [CN=72.5 [N = 3.0:Tp 0.66]	2012	1	5.0	8.21	0.17	2.25	14.50	0.28	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2028	1	5.0	6.70	0.94	1.33	37.12	0.72	0.000
*	ADD [2012+ 2028]	0814	3	5.0	14.91	0.95	1.33	24.67	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2025	1	5.0	6.41	0.84	1.33	32.52	0.63	0.000
*	ADD [2025+ 0814]	0801	3	5.0	21.32	1.79	1.33	27.03	n/a	0.000
*	CALIB NASHYD [CN=79.0 [N = 3.0:Tp 0.48]	20112	1	5.0	5.67	0.20	1.92	18.98	0.37	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2026	1	5.0	4.59	0.67	1.33	37.12	0.72	0.000
*	ADD [20112+ 2026]	0811	3	5.0	10.26	0.68	1.33	27.10	n/a	0.000
*	CHANNEL [2: 0811]	0607	1	5.0	10.26	0.61	1.50	27.09	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2027	1	5.0	2.09	0.32	1.33	37.12	0.72	0.000
*	ADD [2027+ 0607]	0812	3	5.0	12.35	0.85	1.50	28.79	n/a	0.000
*	CHANNEL [2: 0812]	0608	1	5.0	12.35	0.79	1.58	28.77	n/a	0.000
*	CALIB NASHYD [CN=80.8 [N = 3.0:Tp 0.37]	2031	1	5.0	4.00	0.17	1.83	19.62	0.38	0.000
*	ADD [2031+ 0608]	0813	3	5.0	16.35	0.93	1.58	26.53	n/a	0.000
*	ADD [0813+ 0801]	0813	1	5.0	37.67	2.26	1.50	26.81	n/a	0.000
*	CHANNEL [2: 0813]	0609	1	5.0	37.67	2.26	1.50	26.81	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2023	1	5.0	12.60	1.55	1.33	32.52	0.63	0.000
*	ADD [2023+ 0609]	0815	3	5.0	50.27	3.50	1.42	28.24	n/a	0.000
*	ADD [0815+ 0701]	0815	1	5.0	59.44	3.51	1.42	24.73	n/a	0.000
*	CALIB NASHYD	0301	1	5.0	6.80	1.19	1.33	25.13	0.49	0.000

```

[CN=91.7
[ N = 3.0:Tp 0.05]
*
ADD [ 0301+ 0704] 0803 3 5.0 119.71 2.30 3.33 18.26 n/a 0.000
*
ADD [ 0803+ 8031] 0803 1 5.0 312.79 5.58 2.17 16.35 n/a 0.000
*
ADD [ 0803+ 0815] 0803 3 5.0 372.23 7.31 2.00 17.69 n/a 0.000
*
** Reservoir
OUTFLOW: 0501 1 5.0 372.23 3.49 3.83 17.65 n/a 0.000
*
* CALIB NASHYD 2032 1 5.0 1.65 0.09 1.50 15.69 0.30 0.000
[CN=76.2
[ N = 3.0:Tp 0.15]
*
CHANNEL[ 2: 2032] 0605 1 5.0 1.65 0.05 1.75 15.50 n/a 0.000
*
* CALIB NASHYD 2035 1 5.0 0.38 0.02 1.75 17.08 0.33 0.000
[CN=76.0
[ N = 3.0:Tp 0.32]
*
* CALIB NASHYD 2036 1 5.0 0.42 0.03 1.42 16.44 0.32 0.000
[CN=76.0
[ N = 3.0:Tp 0.09]
*
* CALIB STANDHYD 2034 1 5.0 2.49 0.42 1.33 35.22 0.68 0.000
[I%=43.0:S%= 2.00]
*
* CALIB STANDHYD 2033 1 5.0 3.26 0.51 1.33 34.44 0.67 0.000
[I%=40.3:S%= 2.00]
*
ADD [ 2033+ 2034] 0810 3 5.0 5.75 0.93 1.33 34.78 n/a 0.000
*
ADD [ 0810+ 2035] 0810 1 5.0 6.13 0.93 1.33 33.68 n/a 0.000
*
ADD [ 0810+ 2036] 0810 3 5.0 6.55 0.96 1.33 32.58 n/a 0.000
*
ADD [ 0810+ 0501] 0810 1 5.0 378.78 3.53 3.83 17.91 n/a 0.000
*
ADD [ 0810+ 0605] 0810 3 5.0 380.43 3.54 3.83 17.90 n/a 0.000
*
FINISH
=====
=====

```

=====

V V I SSSSS U U A L (v 6.0.2001)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL

000 TTTTT TTTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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***** SUMMARY OUTPUT *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.0\VO2\voin.dat

Output filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\da
dcd771-7892-4e60-996f-a3793b00b2fc\sce

Summary filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\da
dcd771-7892-4e60-996f-a3793b00b2fc\sce

DATE: 04-29-2020

TIME: 09:34:19

USER:

COMMENTS: _____

** SIMULATION : TOBM-25yr **

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
		min	ha	cms	hrs	mm		cms

START @ 0.00 hrs

READ STORM 5.0

[Ptot= 69.09 mm]
fname :
C:\Users\aspencer\AppData\Local\Temp\6cca4534-185e-4841-9d78-9bd38b066ba0\42dc7a70
-f862-40f3-877a-c4
remark: TOBM-25yr

*
** CALIB NASHYD 0101 1 5.0 43.80 2.60 1.83 28.71 0.42 0.000
[CN=77.5]
[N = 3.0:Tp 0.41]
*
CHANNEL[2: 0101] 0606 1 5.0 43.80 2.58 1.92 28.71 n/a 0.000
*
** CALIB NASHYD 0104 1 5.0 17.70 0.57 2.08 19.92 0.29 0.000
[CN=68.5]
[N = 3.0:Tp 0.56]
*
ADD [0104+ 0606] 0804 3 5.0 61.50 3.12 1.92 26.18 n/a 0.000
*
CHANNEL[2: 0804] 0604 1 5.0 61.50 3.11 2.00 26.18 n/a 0.000
*
** CALIB NASHYD 0102 1 5.0 71.90 3.05 2.00 24.76 0.36 0.000
[CN=74.2]
[N = 3.0:Tp 0.53]
*
CHANNEL[2: 0102] 0600 1 5.0 71.90 2.96 2.17 24.76 n/a 0.000
*
** CALIB NASHYD 0103 1 5.0 18.00 0.46 2.33 19.16 0.28 0.000
[CN=67.1]
[N = 3.0:Tp 0.74]
*
ADD [0103+ 0600] 0805 3 5.0 89.90 3.40 2.17 23.64 n/a 0.000
*
ADD [0604+ 0805] 0806 3 5.0 151.40 6.40 2.08 24.67 n/a 0.000
*
CHANNEL[2: 0806] 0601 1 5.0 151.40 6.38 2.17 24.67 n/a 0.000
*
** CALIB NASHYD 2014 1 5.0 4.08 0.07 2.00 10.44 0.15 0.000
[CN=45.3]
[N = 3.0:Tp 0.48]
*
ADD [2014+ 0601] 8021 3 5.0 155.48 6.45 2.17 24.30 n/a 0.000
*
** CALIB NASHYD 2015 1 5.0 8.13 0.28 2.17 21.99 0.32 0.000
[CN=67.6]
[N = 3.0:Tp 0.62]
*
* CALIB STANDHYD 2022 1 5.0 16.01 2.32 1.33 34.13 0.49 0.000
[I%=35.0:S%= 2.00]
*

*	ADD [2015+ 2022]	0802	3	5.0	24.14	2.33	1.33	30.04	n/a	0.000
*	ADD [0802+ 8021]	0802	1	5.0	179.62	7.18	2.08	25.07	n/a	0.000
*	CHANNEL [2: 0802]	0602	1	5.0	179.62	7.18	2.08	25.07	n/a	0.000
*	CALIB NASHYD [CN=81.8 [N = 3.0:Tp 0.75]	2016	1	5.0	9.08	0.44	2.25	34.41	0.50	0.000
*	ADD [2016+ 0602]	0807	3	5.0	188.70	7.59	2.08	25.52	n/a	0.000
*	CHANNEL [2: 0807]	0603	1	5.0	188.70	7.59	2.17	25.52	n/a	0.000
*	CALIB NASHYD [CN=78.4 [N = 3.0:Tp 0.72]	2017	1	5.0	4.38	0.19	2.25	30.27	0.44	0.000
*	ADD [2017+ 0603]	8031	3	5.0	193.08	7.78	2.17	25.63	n/a	0.000
*	CALIB NASHYD [CN=76.8 [N = 3.0:Tp 0.56]	0106	1	5.0	74.80	3.42	2.08	27.35	0.40	0.000
*	SHIFT [2: 0106] [SHIFT= 72.7 min]	0906	1	5.0	74.80	3.42	3.25	27.35	n/a	0.000
*	CALIB NASHYD [CN=79.1 [N = 3.0:Tp 0.45]	0105	1	5.0	27.40	1.55	1.92	29.15	0.42	0.000
*	ADD [0105+ 0906]	0808	3	5.0	102.20	3.84	3.17	27.83	n/a	0.000
*	PIPE [2: 0808]	0702	1	5.0	102.20	3.84	3.25	27.83	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2024	1	5.0	10.71	1.84	1.33	47.44	0.69	0.000
*	ADD [2024+ 0702]	0809	3	5.0	112.91	3.97	3.17	29.69	n/a	0.000
*	PIPE [2: 0809]	0703	1	5.0	112.91	3.97	3.25	29.69	n/a	0.000
*	PIPE [2: 0703]	0704	1	5.0	112.91	3.95	3.25	29.69	n/a	0.000
*	CALIB NASHYD [CN=43.9 [N = 3.0:Tp 0.47]	2018	1	5.0	9.17	0.16	2.00	10.12	0.15	0.000
*	PIPE [2: 2018]	0701	1	5.0	9.17	0.16	2.00	10.12	n/a	0.000

*	CALIB NASHYD [CN=72.5 [N = 3.0:Tp 0.66]	2012	1	5.0	8.21	0.30	2.17	24.84	0.36	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2028	1	5.0	6.70	1.44	1.42	53.12	0.77	0.000
*	ADD [2012+ 2028]	0814	3	5.0	14.91	1.49	1.42	37.55	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2025	1	5.0	6.41	1.14	1.33	47.44	0.69	0.000
*	ADD [2025+ 0814]	0801	3	5.0	21.32	2.60	1.33	40.52	n/a	0.000
*	CALIB NASHYD [CN=79.0 [N = 3.0:Tp 0.48]	20112	1	5.0	5.67	0.33	1.92	31.21	0.45	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2026	1	5.0	4.59	1.01	1.33	53.12	0.77	0.000
*	ADD [20112+ 2026]	0811	3	5.0	10.26	1.08	1.42	41.01	n/a	0.000
*	CHANNEL [2: 0811]	0607	1	5.0	10.26	1.06	1.58	41.00	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2027	1	5.0	2.09	0.48	1.33	53.12	0.77	0.000
*	ADD [2027+ 0607]	0812	3	5.0	12.35	1.34	1.58	43.05	n/a	0.000
*	CHANNEL [2: 0812]	0608	1	5.0	12.35	1.24	1.83	43.04	n/a	0.000
**	CALIB NASHYD [CN=80.8 [N = 3.0:Tp 0.37]	2031	1	5.0	4.00	0.29	1.83	32.28	0.47	0.000
*	ADD [2031+ 0608]	0813	3	5.0	16.35	1.53	1.83	40.41	n/a	0.000
*	ADD [0813+ 0801]	0813	1	5.0	37.67	3.32	1.42	40.47	n/a	0.000
*	CHANNEL [2: 0813]	0609	1	5.0	37.67	3.38	1.50	40.47	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2023	1	5.0	12.60	2.13	1.33	47.44	0.69	0.000
*	ADD [2023+ 0609]	0815	3	5.0	50.27	5.24	1.42	42.22	n/a	0.000
*	ADD [0815+ 0701]	0815	1	5.0	59.44	5.27	1.50	37.27	n/a	0.000
*	CALIB NASHYD	0301	1	5.0	6.80	1.71	1.33	37.42	0.54	0.000

```

[CN=91.7
[ N = 3.0:Tp 0.05]
*
ADD [ 0301+ 0704] 0803 3 5.0 119.71 4.01 3.25 30.13 n/a 0.000
*
ADD [ 0803+ 8031] 0803 1 5.0 312.79 9.90 2.08 27.35 n/a 0.000
*
ADD [ 0803+ 0815] 0803 3 5.0 372.23 12.79 2.00 28.94 n/a 0.000
*
** Reservoir
OUTFLOW: 0501 1 5.0 372.23 8.94 3.00 28.89 n/a 0.000
*
* CALIB NASHYD 2032 1 5.0 1.65 0.16 1.50 26.84 0.39 0.000
[CN=76.2
[ N = 3.0:Tp 0.15]
*
CHANNEL[ 2: 2032] 0605 1 5.0 1.65 0.10 1.75 26.65 n/a 0.000
*
* CALIB NASHYD 2035 1 5.0 0.38 0.03 1.75 28.45 0.41 0.000
[CN=76.0
[ N = 3.0:Tp 0.32]
*
* CALIB NASHYD 2036 1 5.0 0.42 0.05 1.42 27.39 0.40 0.000
[CN=76.0
[ N = 3.0:Tp 0.09]
*
* CALIB STANDHYD 2034 1 5.0 2.49 0.60 1.33 50.61 0.73 0.000
[I%=43.0:S%= 2.00]
*
* CALIB STANDHYD 2033 1 5.0 3.26 0.73 1.33 49.72 0.72 0.000
[I%=40.3:S%= 2.00]
*
ADD [ 2033+ 2034] 0810 3 5.0 5.75 1.33 1.33 50.10 n/a 0.000
*
ADD [ 0810+ 2035] 0810 1 5.0 6.13 1.34 1.33 48.76 n/a 0.000
*
ADD [ 0810+ 2036] 0810 3 5.0 6.55 1.38 1.33 47.39 n/a 0.000
*
ADD [ 0810+ 0501] 0810 1 5.0 378.78 9.02 3.00 29.21 n/a 0.000
*
ADD [ 0810+ 0605] 0810 3 5.0 380.43 9.05 3.00 29.20 n/a 0.000
*
FINISH
=====
=====

```

=====

V V I SSSS U U A L (v 6.0.2001)
V V I SS U U A A L
V V I SS U U A A A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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***** SUMMARY OUTPUT *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.0\VO2\voin.dat

Output filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\e9e61390-86bf-4934-8c4e-13f96a52a312\sce

Summary filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\e9e61390-86bf-4934-8c4e-13f96a52a312\sce

DATE: 04-29-2020

TIME: 09:34:51

USER:

COMMENTS: _____

** SIMULATION : TOBM-100yr **

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
		min	ha	cms	hrs	mm		cms

START @ 0.00 hrs

READ STORM 5.0

[Ptot= 83.55 mm]
fname :
C:\Users\aspencer\AppData\Local\Temp\d676de91-53fa-4177-9c8d-ead978611d7f\f757b5c4-040f-43b5-a806-3c
remark: TOBM-100yr

*
** CALIB NASHYD 0101 1 5.0 43.80 3.66 1.83 39.34 0.47 0.000
[CN=77.5]
[N = 3.0:Tp 0.41]
*
CHANNEL[2: 0101] 0606 1 5.0 43.80 3.63 1.92 39.34 n/a 0.000
*
** CALIB NASHYD 0104 1 5.0 17.70 0.84 2.08 28.50 0.34 0.000
[CN=68.5]
[N = 3.0:Tp 0.56]
*
ADD [0104+ 0606] 0804 3 5.0 61.50 4.43 1.92 36.22 n/a 0.000
*
CHANNEL[2: 0804] 0604 1 5.0 61.50 4.39 2.00 36.22 n/a 0.000
*
** CALIB NASHYD 0102 1 5.0 71.90 4.37 2.00 34.59 0.41 0.000
[CN=74.2]
[N = 3.0:Tp 0.53]
*
CHANNEL[2: 0102] 0600 1 5.0 71.90 4.23 2.17 34.59 n/a 0.000
*
** CALIB NASHYD 0103 1 5.0 18.00 0.68 2.33 27.47 0.33 0.000
[CN=67.1]
[N = 3.0:Tp 0.74]
*
ADD [0103+ 0600] 0805 3 5.0 89.90 4.89 2.17 33.17 n/a 0.000
*
ADD [0604+ 0805] 0806 3 5.0 151.40 9.13 2.08 34.40 n/a 0.000
*
CHANNEL[2: 0806] 0601 1 5.0 151.40 9.09 2.08 34.40 n/a 0.000
*
** CALIB NASHYD 2014 1 5.0 4.08 0.11 2.00 15.28 0.18 0.000
[CN=45.3]
[N = 3.0:Tp 0.48]
*
ADD [2014+ 0601] 8021 3 5.0 155.48 9.20 2.08 33.90 n/a 0.000
*
** CALIB NASHYD 2015 1 5.0 8.13 0.39 2.17 30.68 0.37 0.000
[CN=67.6]
[N = 3.0:Tp 0.62]
*
* CALIB STANDHYD 2022 1 5.0 16.01 2.94 1.33 43.48 0.52 0.000
[I%=35.0:S%= 2.00]
*

*	ADD [2015+ 2022]	0802	3	5.0	24.14	2.97	1.33	39.17	n/a	0.000
*	ADD [0802+ 8021]	0802	1	5.0	179.62	10.16	2.08	34.61	n/a	0.000
*	CHANNEL [2: 0802]	0602	1	5.0	179.62	10.16	2.08	34.61	n/a	0.000
*	CALIB NASHYD [CN=81.8 [N = 3.0:Tp 0.75]	2016	1	5.0	9.08	0.59	2.25	46.05	0.55	0.000
*	ADD [2016+ 0602]	0807	3	5.0	188.70	10.74	2.08	35.16	n/a	0.000
*	CHANNEL [2: 0807]	0603	1	5.0	188.70	10.72	2.17	35.16	n/a	0.000
*	CALIB NASHYD [CN=78.4 [N = 3.0:Tp 0.72]	2017	1	5.0	4.38	0.26	2.25	41.15	0.49	0.000
*	ADD [2017+ 0603]	8031	3	5.0	193.08	10.98	2.17	35.30	n/a	0.000
*	CALIB NASHYD [CN=76.8 [N = 3.0:Tp 0.56]	0106	1	5.0	74.80	4.83	2.08	37.78	0.45	0.000
*	SHIFT [2: 0106] [SHIFT= 72.7 min]	0906	1	5.0	74.80	4.83	3.25	37.78	n/a	0.000
*	CALIB NASHYD [CN=79.1 [N = 3.0:Tp 0.45]	0105	1	5.0	27.40	2.19	1.92	40.05	0.48	0.000
*	ADD [0105+ 0906]	0808	3	5.0	102.20	5.40	3.17	38.39	n/a	0.000
*	PIPE [2: 0808]	0702	1	5.0	102.20	5.40	3.17	38.39	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2024	1	5.0	10.71	2.59	1.42	60.26	0.72	0.000
*	ADD [2024+ 0702]	0809	3	5.0	112.91	5.55	3.17	40.46	n/a	0.000
*	PIPE [2: 0809]	0703	1	5.0	112.91	5.54	3.25	40.46	n/a	0.000
*	PIPE [2: 0703]	0704	1	5.0	112.91	5.53	3.25	40.46	n/a	0.000
*	CALIB NASHYD [CN=43.9 [N = 3.0:Tp 0.47]	2018	1	5.0	9.17	0.25	2.00	14.78	0.18	0.000
*	PIPE [2: 2018]	0701	1	5.0	9.17	0.25	2.00	14.78	n/a	0.000

*	CALIB NASHYD [CN=72.5 [N = 3.0:Tp 0.66]	2012	1	5.0	8.21	0.43	2.17	34.44	0.41	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2028	1	5.0	6.70	1.86	1.42	66.65	0.80	0.000
*	ADD [2012+ 2028]	0814	3	5.0	14.91	1.93	1.42	48.91	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2025	1	5.0	6.41	1.60	1.33	60.26	0.72	0.000
*	ADD [2025+ 0814]	0801	3	5.0	21.32	3.48	1.42	52.32	n/a	0.000
*	CALIB NASHYD [CN=79.0 [N = 3.0:Tp 0.48]	20112	1	5.0	5.67	0.46	1.92	42.24	0.51	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2026	1	5.0	4.59	1.29	1.33	66.65	0.80	0.000
*	ADD [20112+ 2026]	0811	3	5.0	10.26	1.41	1.42	53.16	n/a	0.000
*	CHANNEL [2: 0811]	0607	1	5.0	10.26	1.19	1.75	53.15	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2027	1	5.0	2.09	0.61	1.33	66.65	0.80	0.000
*	ADD [2027+ 0607]	0812	3	5.0	12.35	1.66	1.50	55.43	n/a	0.000
*	CHANNEL [2: 0812]	0608	1	5.0	12.35	1.44	1.67	55.42	n/a	0.000
**	CALIB NASHYD [CN=80.8 [N = 3.0:Tp 0.37]	2031	1	5.0	4.00	0.40	1.75	43.65	0.52	0.000
*	ADD [2031+ 0608]	0813	3	5.0	16.35	1.83	1.75	52.54	n/a	0.000
*	ADD [0813+ 0801]	0813	1	5.0	37.67	4.60	1.42	52.42	n/a	0.000
*	CHANNEL [2: 0813]	0609	1	5.0	37.67	4.60	1.50	52.42	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2023	1	5.0	12.60	3.03	1.42	60.26	0.72	0.000
*	ADD [2023+ 0609]	0815	3	5.0	50.27	7.49	1.42	54.38	n/a	0.000
*	ADD [0815+ 0701]	0815	1	5.0	59.44	7.51	1.42	48.27	n/a	0.000
*	CALIB NASHYD	0301	1	5.0	6.80	2.20	1.33	47.82	0.57	0.000

```

[CN=91.7
[ N = 3.0:Tp 0.05]
*
ADD [ 0301+ 0704] 0803 3 5.0 119.71 5.60 3.25 40.88 n/a 0.000
*
ADD [ 0803+ 8031] 0803 1 5.0 312.79 13.83 2.08 37.43 n/a 0.000
*
ADD [ 0803+ 0815] 0803 3 5.0 372.23 17.50 2.00 39.16 n/a 0.000
*
** Reservoir
OUTFLOW: 0501 1 5.0 372.23 14.56 2.42 39.12 n/a 0.000
*
* CALIB NASHYD 2032 1 5.0 1.65 0.23 1.50 37.09 0.44 0.000
[CN=76.2
[ N = 3.0:Tp 0.15]
*
CHANNEL[ 2: 2032] 0605 1 5.0 1.65 0.16 1.67 36.89 n/a 0.000
*
* CALIB NASHYD 2035 1 5.0 0.38 0.04 1.75 38.85 0.46 0.000
[CN=76.0
[ N = 3.0:Tp 0.32]
*
* CALIB NASHYD 2036 1 5.0 0.42 0.07 1.42 37.39 0.45 0.000
[CN=76.0
[ N = 3.0:Tp 0.09]
*
* CALIB STANDHYD 2034 1 5.0 2.49 0.75 1.33 63.72 0.76 0.000
[I%=43.0:S%= 2.00]
*
* CALIB STANDHYD 2033 1 5.0 3.26 0.93 1.33 62.76 0.75 0.000
[I%=40.3:S%= 2.00]
*
ADD [ 2033+ 2034] 0810 3 5.0 5.75 1.68 1.33 63.18 n/a 0.000
*
ADD [ 0810+ 2035] 0810 1 5.0 6.13 1.69 1.33 61.67 n/a 0.000
*
ADD [ 0810+ 2036] 0810 3 5.0 6.55 1.75 1.33 60.11 n/a 0.000
*
ADD [ 0810+ 0501] 0810 1 5.0 378.78 14.74 2.42 39.49 n/a 0.000
*
ADD [ 0810+ 0605] 0810 3 5.0 380.43 14.80 2.42 39.48 n/a 0.000
*
FINISH
=====
=====

```

=====

V V I SSSS U U A L (v 6.0.2001)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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***** SUMMARY OUTPUT *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.0\VO2\voin.dat

Output filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\1685e7e7-f9b8-4d5d-a1df-dc641abe69f2\sce

Summary filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\1685e7e7-f9b8-4d5d-a1df-dc641abe69f2\sce

DATE: 04-29-2020

TIME: 09:26:17

USER:

COMMENTS: _____

** SIMULATION : 2yr SCS (MTO) **

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
		min	ha	cms	hrs	mm		cms

START @ 0.00 hrs

READ STORM 15.0

[Ptot= 54.57 mm]
fname :
C:\Users\aspencer\AppData\Local\Temp\14e80bce-9a16-4222-bc80-9d377f715e56\4ff431aa-767e-4f62-8b37-5b
remark: SCS24H - 2yr (MTO)

*
** CALIB NASHYD 0101 1 5.0 43.80 1.26 12.33 18.95 0.35 0.000
[CN=77.5]
[N = 3.0:Tp 0.41]
*
* CHANNEL[2: 0101] 0606 1 5.0 43.80 1.23 12.42 18.95 n/a 0.000
*
** CALIB NASHYD 0104 1 5.0 17.70 0.25 12.50 12.37 0.23 0.000
[CN=68.5]
[N = 3.0:Tp 0.56]
*
* ADD [0104+ 0606] 0804 3 5.0 61.50 1.48 12.42 17.05 n/a 0.000
*
* CHANNEL[2: 0804] 0604 1 5.0 61.50 1.45 12.50 17.05 n/a 0.000
*
** CALIB NASHYD 0102 1 5.0 71.90 1.40 12.50 15.90 0.29 0.000
[CN=74.2]
[N = 3.0:Tp 0.53]
*
* CHANNEL[2: 0102] 0600 1 5.0 71.90 1.35 12.58 15.90 n/a 0.000
*
** CALIB NASHYD 0103 1 5.0 18.00 0.20 12.75 11.87 0.22 0.000
[CN=67.1]
[N = 3.0:Tp 0.74]
*
* ADD [0103+ 0600] 0805 3 5.0 89.90 1.55 12.58 15.09 n/a 0.000
*
* ADD [0604+ 0805] 0806 3 5.0 151.40 2.96 12.58 15.89 n/a 0.000
*
* CHANNEL[2: 0806] 0601 1 5.0 151.40 2.96 12.58 15.89 n/a 0.000
*
** CALIB NASHYD 2014 1 5.0 4.08 0.03 12.42 6.38 0.12 0.000
[CN=45.3]
[N = 3.0:Tp 0.48]
*
* ADD [2014+ 0601] 8021 3 5.0 155.48 2.99 12.58 15.64 n/a 0.000
*
** CALIB NASHYD 2015 1 5.0 8.13 0.13 12.58 14.25 0.26 0.000
[CN=67.6]
[N = 3.0:Tp 0.62]
*
** CALIB STANDHYD 2022 1 5.0 16.01 1.07 12.00 25.33 0.46 0.000
[I%=35.0:S%= 2.00]
*

*	ADD [2015+ 2022]	0802	3	5.0	24.14	1.11	12.00	21.60	n/a	0.000
*	ADD [0802+ 8021]	0802	1	5.0	179.62	3.34	12.50	16.44	n/a	0.000
*	CHANNEL [2: 0802]	0602	1	5.0	179.62	3.34	12.58	16.44	n/a	0.000
**	CALIB NASHYD [CN=81.8 [N = 3.0:Tp 0.75]	2016	1	5.0	9.08	0.21	12.67	23.49	0.43	0.000
*	ADD [2016+ 0602]	0807	3	5.0	188.70	3.55	12.58	16.78	n/a	0.000
*	CHANNEL [2: 0807]	0603	1	5.0	188.70	3.54	12.58	16.78	n/a	0.000
**	CALIB NASHYD [CN=78.4 [N = 3.0:Tp 0.72]	2017	1	5.0	4.38	0.09	12.67	20.23	0.37	0.000
*	ADD [2017+ 0603]	8031	3	5.0	193.08	3.63	12.58	16.86	n/a	0.000
**	CALIB NASHYD [CN=76.8 [N = 3.0:Tp 0.56]	0106	1	5.0	74.80	1.60	12.50	17.83	0.33	0.000
*	SHIFT [2: 0106] [SHIFT= 72.7 min]	0906	1	5.0	74.80	1.60	13.67	17.83	n/a	0.000
**	CALIB NASHYD [CN=79.1 [N = 3.0:Tp 0.45]	0105	1	5.0	27.40	0.74	12.33	19.11	0.35	0.000
*	ADD [0105+ 0906]	0808	3	5.0	102.20	1.78	13.67	18.18	n/a	0.000
*	PIPE [2: 0808]	0702	1	5.0	102.20	1.78	13.67	18.18	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2024	1	5.0	10.71	1.00	12.00	35.04	0.64	0.000
*	ADD [2024+ 0702]	0809	3	5.0	112.91	1.85	13.67	19.78	n/a	0.000
*	PIPE [2: 0809]	0703	1	5.0	112.91	1.85	13.67	19.78	n/a	0.000
*	PIPE [2: 0703]	0704	1	5.0	112.91	1.83	13.75	19.78	n/a	0.000
*	CALIB NASHYD [CN=43.9 [N = 3.0:Tp 0.47]	2018	1	5.0	9.17	0.07	12.42	6.20	0.11	0.000
*	PIPE [2: 2018]	0701	1	5.0	9.17	0.07	12.42	6.20	n/a	0.000

*	CALIB NASHYD [CN=72.5 [N = 3.0:Tp 0.66]	2012	1	5.0	8.21	0.14	12.58	16.17	0.30	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2028	1	5.0	6.70	0.72	12.00	39.85	0.73	0.000
*	ADD [2012+ 2028]	0814	3	5.0	14.91	0.77	12.00	26.81	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2025	1	5.0	6.41	0.61	12.00	35.04	0.64	0.000
*	ADD [2025+ 0814]	0801	3	5.0	21.32	1.38	12.00	29.28	n/a	0.000
*	CALIB NASHYD [CN=79.0 [N = 3.0:Tp 0.48]	20112	1	5.0	5.67	0.16	12.33	20.98	0.38	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2026	1	5.0	4.59	0.50	12.00	39.85	0.73	0.000
*	ADD [20112+ 2026]	0811	3	5.0	10.26	0.58	12.00	29.42	n/a	0.000
*	CHANNEL [2: 0811]	0607	1	5.0	10.26	0.50	12.08	29.42	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2027	1	5.0	2.09	0.23	12.00	39.85	0.73	0.000
*	ADD [2027+ 0607]	0812	3	5.0	12.35	0.69	12.00	31.18	n/a	0.000
*	CHANNEL [2: 0812]	0608	1	5.0	12.35	0.61	12.17	31.17	n/a	0.000
*	CALIB NASHYD [CN=80.8 [N = 3.0:Tp 0.37]	2031	1	5.0	4.00	0.14	12.25	21.69	0.40	0.000
*	ADD [2031+ 0608]	0813	3	5.0	16.35	0.75	12.17	28.85	n/a	0.000
*	ADD [0813+ 0801]	0813	1	5.0	37.67	1.95	12.00	29.09	n/a	0.000
*	CHANNEL [2: 0813]	0609	1	5.0	37.67	1.85	12.08	29.09	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2023	1	5.0	12.60	1.07	12.00	35.04	0.64	0.000
*	ADD [2023+ 0609]	0815	3	5.0	50.27	2.75	12.00	30.58	n/a	0.000
*	ADD [0815+ 0701]	0815	1	5.0	59.44	2.77	12.00	26.82	n/a	0.000
*	CALIB NASHYD	0301	1	5.0	6.80	0.78	12.00	27.22	0.50	0.000

```

[CN=91.7
[ N = 3.0:Tp 0.05]
*
ADD [ 0301+ 0704] 0803 3 5.0 119.71 1.86 13.75 20.20 n/a 0.000
*
ADD [ 0803+ 8031] 0803 1 5.0 312.79 4.72 12.50 18.13 n/a 0.000
*
ADD [ 0803+ 0815] 0803 3 5.0 372.23 6.17 12.50 19.52 n/a 0.000
*
** Reservoir
OUTFLOW: 0501 1 5.0 372.23 2.69 14.17 19.47 n/a 0.000
*
* CALIB NASHYD 2032 1 5.0 1.65 0.09 12.00 17.50 0.32 0.000
[CN=76.2
[ N = 3.0:Tp 0.15]
*
CHANNEL[ 2: 2032] 0605 1 5.0 1.65 0.05 12.17 17.31 n/a 0.000
*
* CALIB NASHYD 2035 1 5.0 0.38 0.01 12.17 18.93 0.35 0.000
[CN=76.0
[ N = 3.0:Tp 0.32]
*
* CALIB NASHYD 2036 1 5.0 0.42 0.03 12.00 18.22 0.33 0.000
[CN=76.0
[ N = 3.0:Tp 0.09]
*
* CALIB STANDHYD 2034 1 5.0 2.49 0.28 12.00 37.82 0.69 0.000
[I%=43.0:S%= 2.00]
*
* CALIB STANDHYD 2033 1 5.0 3.26 0.35 12.00 37.03 0.68 0.000
[I%=40.3:S%= 2.00]
*
ADD [ 2033+ 2034] 0810 3 5.0 5.75 0.62 12.00 37.37 n/a 0.000
*
ADD [ 0810+ 2035] 0810 1 5.0 6.13 0.63 12.00 36.23 n/a 0.000
*
ADD [ 0810+ 2036] 0810 3 5.0 6.55 0.66 12.00 35.08 n/a 0.000
*
ADD [ 0810+ 0501] 0810 1 5.0 378.78 2.71 14.17 19.74 n/a 0.000
*
ADD [ 0810+ 0605] 0810 3 5.0 380.43 2.72 14.17 19.73 n/a 0.000
*
FINISH
=====
=====

```

=====

V V I SSSS U U A L (v 6.0.2001)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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***** SUMMARY OUTPUT *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.0\VO2\voin.dat

Output filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\5e
d314a5-fd86-4dd0-9d82-afcffb1ef03a\sce

Summary filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\5e
d314a5-fd86-4dd0-9d82-afcffb1ef03a\sce

DATE: 04-29-2020

TIME: 09:27:00

USER:

COMMENTS: _____

** SIMULATION : 5yr SCS (MTO) **

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
		min	ha	cms	hrs	mm		cms

START @ 0.00 hrs

READ STORM 15.0

[Ptot= 72.67 mm]
fname :
C:\Users\aspencer\AppData\Local\Temp\b5f14d17-db18-4a87-8ec7-318318dbefbb\47aa0107
-fba0-4653-98ff-49
remark: SCS24H - 5yr (MTO)

*
** CALIB NASHYD 0101 1 5.0 43.80 2.12 12.25 31.27 0.43 0.000
[CN=77.5]
[N = 3.0:Tp 0.41]
*
CHANNEL[2: 0101] 0606 1 5.0 43.80 2.10 12.33 31.27 n/a 0.000
*
** CALIB NASHYD 0104 1 5.0 17.70 0.46 12.50 21.96 0.30 0.000
[CN=68.5]
[N = 3.0:Tp 0.56]
*
ADD [0104+ 0606] 0804 3 5.0 61.50 2.54 12.33 28.59 n/a 0.000
*
CHANNEL[2: 0804] 0604 1 5.0 61.50 2.52 12.42 28.58 n/a 0.000
*
** CALIB NASHYD 0102 1 5.0 71.90 2.48 12.42 27.11 0.37 0.000
[CN=74.2]
[N = 3.0:Tp 0.53]
*
CHANNEL[2: 0102] 0600 1 5.0 71.90 2.38 12.58 27.11 n/a 0.000
*
** CALIB NASHYD 0103 1 5.0 18.00 0.37 12.67 21.13 0.29 0.000
[CN=67.1]
[N = 3.0:Tp 0.74]
*
ADD [0103+ 0600] 0805 3 5.0 89.90 2.75 12.58 25.92 n/a 0.000
*
ADD [0604+ 0805] 0806 3 5.0 151.40 5.19 12.50 27.00 n/a 0.000
*
CHANNEL[2: 0806] 0601 1 5.0 151.40 5.16 12.50 27.00 n/a 0.000
*
** CALIB NASHYD 2014 1 5.0 4.08 0.06 12.42 11.57 0.16 0.000
[CN=45.3]
[N = 3.0:Tp 0.48]
*
ADD [2014+ 0601] 8021 3 5.0 155.48 5.22 12.50 26.59 n/a 0.000
*
** CALIB NASHYD 2015 1 5.0 8.13 0.22 12.58 24.06 0.33 0.000
[CN=67.6]
[N = 3.0:Tp 0.62]
*
** CALIB STANDHYD 2022 1 5.0 16.01 1.55 12.00 36.39 0.50 0.000
[I%=35.0:S%= 2.00]
*

*	ADD [2015+ 2022]	0802	3	5.0	24.14	1.63	12.00	32.24	n/a	0.000
*	ADD [0802+ 8021]	0802	1	5.0	179.62	5.81	12.50	27.35	n/a	0.000
*	CHANNEL [2: 0802]	0602	1	5.0	179.62	5.80	12.50	27.35	n/a	0.000
**	CALIB NASHYD [CN=81.8 [N = 3.0:Tp 0.75]	2016	1	5.0	9.08	0.34	12.67	37.23	0.51	0.000
*	ADD [2016+ 0602]	0807	3	5.0	188.70	6.13	12.50	27.83	n/a	0.000
*	CHANNEL [2: 0807]	0603	1	5.0	188.70	6.12	12.58	27.83	n/a	0.000
**	CALIB NASHYD [CN=78.4 [N = 3.0:Tp 0.72]	2017	1	5.0	4.38	0.15	12.67	32.89	0.45	0.000
*	ADD [2017+ 0603]	8031	3	5.0	193.08	6.27	12.58	27.94	n/a	0.000
**	CALIB NASHYD [CN=76.8 [N = 3.0:Tp 0.56]	0106	1	5.0	74.80	2.76	12.50	29.86	0.41	0.000
*	SHIFT [2: 0106] [SHIFT= 72.7 min]	0906	1	5.0	74.80	2.76	13.67	29.86	n/a	0.000
**	CALIB NASHYD [CN=79.1 [N = 3.0:Tp 0.45]	0105	1	5.0	27.40	1.27	12.33	31.77	0.44	0.000
*	ADD [0105+ 0906]	0808	3	5.0	102.20	3.05	13.58	30.37	n/a	0.000
*	PIPE [2: 0808]	0702	1	5.0	102.20	3.04	13.67	30.37	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2024	1	5.0	10.71	1.48	12.00	50.58	0.70	0.000
*	ADD [2024+ 0702]	0809	3	5.0	112.91	3.13	13.58	32.29	n/a	0.000
*	PIPE [2: 0809]	0703	1	5.0	112.91	3.13	13.67	32.29	n/a	0.000
*	PIPE [2: 0703]	0704	1	5.0	112.91	3.12	13.67	32.29	n/a	0.000
*	CALIB NASHYD [CN=43.9 [N = 3.0:Tp 0.47]	2018	1	5.0	9.17	0.13	12.42	11.20	0.15	0.000
*	PIPE [2: 2018]	0701	1	5.0	9.17	0.13	12.42	11.20	n/a	0.000

*	CALIB NASHYD [CN=72.5 [N = 3.0:Tp 0.66]	2012	1	5.0	8.21	0.24	12.58	27.13	0.37	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2028	1	5.0	6.70	1.05	12.00	56.45	0.78	0.000
*	ADD [2012+ 2028]	0814	3	5.0	14.91	1.13	12.00	40.31	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2025	1	5.0	6.41	0.90	12.00	50.58	0.70	0.000
*	ADD [2025+ 0814]	0801	3	5.0	21.32	2.04	12.00	43.39	n/a	0.000
*	CALIB NASHYD [CN=79.0 [N = 3.0:Tp 0.48]	20112	1	5.0	5.67	0.27	12.33	33.87	0.47	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2026	1	5.0	4.59	0.73	12.00	56.44	0.78	0.000
*	ADD [20112+ 2026]	0811	3	5.0	10.26	0.86	12.00	43.97	n/a	0.000
*	CHANNEL [2: 0811]	0607	1	5.0	10.26	0.76	12.08	43.96	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2027	1	5.0	2.09	0.34	12.00	56.44	0.78	0.000
*	ADD [2027+ 0607]	0812	3	5.0	12.35	1.03	12.00	46.08	n/a	0.000
*	CHANNEL [2: 0812]	0608	1	5.0	12.35	0.97	12.17	46.06	n/a	0.000
**	CALIB NASHYD [CN=80.8 [N = 3.0:Tp 0.37]	2031	1	5.0	4.00	0.24	12.25	35.03	0.48	0.000
*	ADD [2031+ 0608]	0813	3	5.0	16.35	1.20	12.17	43.36	n/a	0.000
*	ADD [0813+ 0801]	0813	1	5.0	37.67	2.88	12.00	43.38	n/a	0.000
*	CHANNEL [2: 0813]	0609	1	5.0	37.67	2.75	12.08	43.38	n/a	0.000
**	CALIB STANDHYD [I%=35.0:S%= 2.00]	2023	1	5.0	12.60	1.73	12.00	50.58	0.70	0.000
*	ADD [2023+ 0609]	0815	3	5.0	50.27	4.27	12.00	45.18	n/a	0.000
*	ADD [0815+ 0701]	0815	1	5.0	59.44	4.32	12.00	39.94	n/a	0.000
**	CALIB NASHYD	0301	1	5.0	6.80	1.11	12.00	39.97	0.55	0.000

```

[CN=91.7
[ N = 3.0:Tp 0.05]
*
ADD [ 0301+ 0704] 0803 3 5.0 119.71 3.16 13.67 32.72 n/a 0.000
*
ADD [ 0803+ 8031] 0803 1 5.0 312.79 8.11 12.50 29.77 n/a 0.000
*
ADD [ 0803+ 0815] 0803 3 5.0 372.23 10.25 12.50 31.40 n/a 0.000
*
** Reservoir
OUTFLOW: 0501 1 5.0 372.23 6.22 13.67 31.34 n/a 0.000
*
** CALIB NASHYD 2032 1 5.0 1.65 0.15 12.00 29.30 0.40 0.000
[CN=76.2
[ N = 3.0:Tp 0.15]
*
CHANNEL[ 2: 2032] 0605 1 5.0 1.65 0.09 12.17 29.12 n/a 0.000
*
** CALIB NASHYD 2035 1 5.0 0.38 0.02 12.17 30.95 0.43 0.000
[CN=76.0
[ N = 3.0:Tp 0.32]
*
** CALIB NASHYD 2036 1 5.0 0.42 0.05 12.00 29.79 0.41 0.000
[CN=76.0
[ N = 3.0:Tp 0.09]
*
* CALIB STANDHYD 2034 1 5.0 2.49 0.40 12.00 53.82 0.74 0.000
[I%=43.0:S%= 2.00]
*
* CALIB STANDHYD 2033 1 5.0 3.26 0.50 12.00 52.91 0.73 0.000
[I%=40.3:S%= 2.00]
*
ADD [ 2033+ 2034] 0810 3 5.0 5.75 0.90 12.00 53.31 n/a 0.000
*
ADD [ 0810+ 2035] 0810 1 5.0 6.13 0.92 12.00 51.92 n/a 0.000
*
ADD [ 0810+ 2036] 0810 3 5.0 6.55 0.97 12.00 50.50 n/a 0.000
*
ADD [ 0810+ 0501] 0810 1 5.0 378.78 6.27 13.67 31.67 n/a 0.000
*
ADD [ 0810+ 0605] 0810 3 5.0 380.43 6.29 13.67 31.66 n/a 0.000
*
FINISH
=====
=====

```

=====

V V I SSSS U U A L (v 6.0.2001)
V V I SS U U A A L
V V I SS U U A A A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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***** SUMMARY OUTPUT *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.0\VO2\voin.dat

Output filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\1263976f-92e3-4838-beb8-8f9843d557eb\sce

Summary filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\1263976f-92e3-4838-beb8-8f9843d557eb\sce

DATE: 04-29-2020

TIME: 09:27:31

USER:

COMMENTS: _____

** SIMULATION : 10yr SCS (MTO) **

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
		min	ha	cms	hrs	mm		cms

START @ 0.00 hrs

READ STORM 15.0

[Ptot= 84.36 mm]
fname :
C:\Users\aspencer\AppData\Local\Temp\15cc6928-52a2-41d5-b4a6-e6c7d3dfc998\23b73696-517c-4876-ae65-f2
remark: SCS24H - 10yr (MTO)

*
** CALIB NASHYD 0101 1 5.0 43.80 2.74 12.25 39.96 0.47 0.000
[CN=77.5]
[N = 3.0:Tp 0.41]
*
CHANNEL [2: 0101] 0606 1 5.0 43.80 2.71 12.33 39.96 n/a 0.000
*
** CALIB NASHYD 0104 1 5.0 17.70 0.62 12.50 29.01 0.34 0.000
[CN=68.5]
[N = 3.0:Tp 0.56]
*
ADD [0104+ 0606] 0804 3 5.0 61.50 3.31 12.33 36.81 n/a 0.000
*
CHANNEL [2: 0804] 0604 1 5.0 61.50 3.28 12.42 36.80 n/a 0.000
*
** CALIB NASHYD 0102 1 5.0 71.90 3.25 12.42 35.17 0.42 0.000
[CN=74.2]
[N = 3.0:Tp 0.53]
*
CHANNEL [2: 0102] 0600 1 5.0 71.90 3.13 12.58 35.17 n/a 0.000
*
** CALIB NASHYD 0103 1 5.0 18.00 0.49 12.67 27.97 0.33 0.000
[CN=67.1]
[N = 3.0:Tp 0.74]
*
ADD [0103+ 0600] 0805 3 5.0 89.90 3.61 12.58 33.73 n/a 0.000
*
ADD [0604+ 0805] 0806 3 5.0 151.40 6.79 12.50 34.98 n/a 0.000
*
CHANNEL [2: 0806] 0601 1 5.0 151.40 6.76 12.50 34.98 n/a 0.000
*
** CALIB NASHYD 2014 1 5.0 4.08 0.08 12.42 15.57 0.18 0.000
[CN=45.3]
[N = 3.0:Tp 0.48]
*
ADD [2014+ 0601] 8021 3 5.0 155.48 6.84 12.50 34.47 n/a 0.000
*
** CALIB NASHYD 2015 1 5.0 8.13 0.28 12.58 31.20 0.37 0.000
[CN=67.6]
[N = 3.0:Tp 0.62]
*
** CALIB STANDHYD 2022 1 5.0 16.01 1.87 12.00 44.02 0.52 0.000
[I%=35.0:S%= 2.00]
*

*	ADD [2015+ 2022]	0802	3	5.0	24.14	1.98	12.00	39.70	n/a	0.000
*	ADD [0802+ 8021]	0802	1	5.0	179.62	7.57	12.50	35.17	n/a	0.000
*	CHANNEL [2: 0802]	0602	1	5.0	179.62	7.56	12.50	35.17	n/a	0.000
**	CALIB NASHYD [CN=81.8 [N = 3.0:Tp 0.75]	2016	1	5.0	9.08	0.43	12.67	46.72	0.55	0.000
*	ADD [2016+ 0602]	0807	3	5.0	188.70	7.98	12.50	35.73	n/a	0.000
*	CHANNEL [2: 0807]	0603	1	5.0	188.70	7.96	12.58	35.73	n/a	0.000
**	CALIB NASHYD [CN=78.4 [N = 3.0:Tp 0.72]	2017	1	5.0	4.38	0.19	12.67	41.78	0.50	0.000
*	ADD [2017+ 0603]	8031	3	5.0	193.08	8.15	12.58	35.86	n/a	0.000
**	CALIB NASHYD [CN=76.8 [N = 3.0:Tp 0.56]	0106	1	5.0	74.80	3.57	12.50	38.39	0.46	0.000
*	SHIFT [2: 0106] [SHIFT= 72.7 min]	0906	1	5.0	74.80	3.57	13.67	38.39	n/a	0.000
**	CALIB NASHYD [CN=79.1 [N = 3.0:Tp 0.45]	0105	1	5.0	27.40	1.65	12.33	40.68	0.48	0.000
*	ADD [0105+ 0906]	0808	3	5.0	102.20	3.94	13.58	39.00	n/a	0.000
*	PIPE [2: 0808]	0702	1	5.0	102.20	3.94	13.58	39.00	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2024	1	5.0	10.71	1.81	12.00	60.99	0.72	0.000
*	ADD [2024+ 0702]	0809	3	5.0	112.91	4.05	13.58	41.09	n/a	0.000
*	PIPE [2: 0809]	0703	1	5.0	112.91	4.05	13.67	41.09	n/a	0.000
*	PIPE [2: 0703]	0704	1	5.0	112.91	4.03	13.67	41.09	n/a	0.000
*	CALIB NASHYD [CN=43.9 [N = 3.0:Tp 0.47]	2018	1	5.0	9.17	0.18	12.33	15.06	0.18	0.000
*	PIPE [2: 2018]	0701	1	5.0	9.17	0.18	12.42	15.06	n/a	0.000

*	CALIB NASHYD [CN=72.5 [N = 3.0:Tp 0.66]	2012	1	5.0	8.21	0.31	12.58	35.01	0.41	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2028	1	5.0	6.70	1.27	12.00	67.41	0.80	0.000
*	ADD [2012+ 2028]	0814	3	5.0	14.91	1.38	12.00	49.57	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2025	1	5.0	6.41	1.10	12.00	60.99	0.72	0.000
*	ADD [2025+ 0814]	0801	3	5.0	21.32	2.49	12.00	53.00	n/a	0.000
*	CALIB NASHYD [CN=79.0 [N = 3.0:Tp 0.48]	20112	1	5.0	5.67	0.34	12.33	42.88	0.51	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2026	1	5.0	4.59	0.88	12.00	67.41	0.80	0.000
*	ADD [20112+ 2026]	0811	3	5.0	10.26	1.06	12.00	53.85	n/a	0.000
*	CHANNEL [2: 0811]	0607	1	5.0	10.26	0.95	12.08	53.85	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2027	1	5.0	2.09	0.44	12.00	67.41	0.80	0.000
*	ADD [2027+ 0607]	0812	3	5.0	12.35	1.25	12.00	56.14	n/a	0.000
*	CHANNEL [2: 0812]	0608	1	5.0	12.35	1.16	12.25	56.13	n/a	0.000
**	CALIB NASHYD [CN=80.8 [N = 3.0:Tp 0.37]	2031	1	5.0	4.00	0.30	12.25	44.31	0.53	0.000
*	ADD [2031+ 0608]	0813	3	5.0	16.35	1.47	12.25	53.23	n/a	0.000
*	ADD [0813+ 0801]	0813	1	5.0	37.67	3.51	12.00	53.10	n/a	0.000
*	CHANNEL [2: 0813]	0609	1	5.0	37.67	3.36	12.08	53.10	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2023	1	5.0	12.60	2.12	12.00	60.99	0.72	0.000
*	ADD [2023+ 0609]	0815	3	5.0	50.27	5.23	12.00	55.08	n/a	0.000
*	ADD [0815+ 0701]	0815	1	5.0	59.44	5.29	12.00	48.91	n/a	0.000
*	CALIB NASHYD	0301	1	5.0	6.80	1.33	12.00	48.41	0.57	0.000

```

[CN=91.7
[ N = 3.0:Tp 0.05]
*
ADD [ 0301+ 0704] 0803 3 5.0 119.71 4.08 13.67 41.50 n/a 0.000
*
ADD [ 0803+ 8031] 0803 1 5.0 312.79 10.54 12.50 38.02 n/a 0.000
*
ADD [ 0803+ 0815] 0803 3 5.0 372.23 13.24 12.42 39.76 n/a 0.000
*
** Reservoir
OUTFLOW: 0501 1 5.0 372.23 9.57 13.00 39.70 n/a 0.000
*
* CALIB NASHYD 2032 1 5.0 1.65 0.19 12.00 37.69 0.45 0.000
[CN=76.2
[ N = 3.0:Tp 0.15]
*
CHANNEL[ 2: 2032] 0605 1 5.0 1.65 0.13 12.17 37.50 n/a 0.000
*
* CALIB NASHYD 2035 1 5.0 0.38 0.03 12.17 39.46 0.47 0.000
[CN=76.0
[ N = 3.0:Tp 0.32]
*
* CALIB NASHYD 2036 1 5.0 0.42 0.06 12.00 37.98 0.45 0.000
[CN=76.0
[ N = 3.0:Tp 0.09]
*
* CALIB STANDHYD 2034 1 5.0 2.49 0.51 12.00 64.47 0.76 0.000
[I%=43.0:S%= 2.00]
*
* CALIB STANDHYD 2033 1 5.0 3.26 0.61 12.00 63.50 0.75 0.000
[I%=40.3:S%= 2.00]
*
ADD [ 2033+ 2034] 0810 3 5.0 5.75 1.12 12.00 63.92 n/a 0.000
*
ADD [ 0810+ 2035] 0810 1 5.0 6.13 1.14 12.00 62.40 n/a 0.000
*
ADD [ 0810+ 2036] 0810 3 5.0 6.55 1.21 12.00 60.84 n/a 0.000
*
ADD [ 0810+ 0501] 0810 1 5.0 378.78 9.67 13.00 40.07 n/a 0.000
*
ADD [ 0810+ 0605] 0810 3 5.0 380.43 9.70 13.00 40.06 n/a 0.000
*
FINISH
=====
=====

```

=====

V V I SSSS U U A L (v 6.0.2001)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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***** SUMMARY OUTPUT *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.0\VO2\voin.dat

Output filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\d2
c72fb0-e0bb-4de4-8f5d-250ee99ff35b\sce

Summary filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\d2
c72fb0-e0bb-4de4-8f5d-250ee99ff35b\sce

DATE: 04-29-2020

TIME: 09:28:20

USER:

COMMENTS: _____

** SIMULATION : 25yr SCS (MTO) **

W/E COMMAND	HYD ID	DT	AREA	' Qpeak	Tpeak	R.V.	R.C.	Qbase
		min	ha	' cms	hrs	mm		cms

START @ 0.00 hrs

READ STORM 15.0

[Ptot= 99.43 mm]
fname :
C:\Users\aspencer\AppData\Local\Temp\6ab0098-a399-4eb4-bead-467964ed0070\2e923112
-b8bc-4507-88c5-e7
remark: SCS24H - 25yr (MTO)

*
** CALIB NASHYD 0101 1 5.0 43.80 3.58 12.25 51.78 0.52 0.000
[CN=77.5]
[N = 3.0:Tp 0.41]
*
CHANNEL[2: 0101] 0606 1 5.0 43.80 3.55 12.33 51.78 n/a 0.000
*
** CALIB NASHYD 0104 1 5.0 17.70 0.84 12.50 38.88 0.39 0.000
[CN=68.5]
[N = 3.0:Tp 0.56]
*
ADD [0104+ 0606] 0804 3 5.0 61.50 4.36 12.33 48.07 n/a 0.000
*
CHANNEL[2: 0804] 0604 1 5.0 61.50 4.32 12.42 48.07 n/a 0.000
*
** CALIB NASHYD 0102 1 5.0 71.90 4.32 12.42 46.25 0.47 0.000
[CN=74.2]
[N = 3.0:Tp 0.53]
*
CHANNEL[2: 0102] 0600 1 5.0 71.90 4.15 12.58 46.25 n/a 0.000
*
** CALIB NASHYD 0103 1 5.0 18.00 0.67 12.67 37.57 0.38 0.000
[CN=67.1]
[N = 3.0:Tp 0.74]
*
ADD [0103+ 0600] 0805 3 5.0 89.90 4.81 12.58 44.51 n/a 0.000
*
ADD [0604+ 0805] 0806 3 5.0 151.40 8.99 12.50 45.95 n/a 0.000
*
CHANNEL[2: 0806] 0601 1 5.0 151.40 8.96 12.50 45.95 n/a 0.000
*
** CALIB NASHYD 2014 1 5.0 4.08 0.11 12.42 21.39 0.22 0.000
[CN=45.3]
[N = 3.0:Tp 0.48]
*
ADD [2014+ 0601] 8021 3 5.0 155.48 9.07 12.50 45.31 n/a 0.000
*
** CALIB NASHYD 2015 1 5.0 8.13 0.38 12.50 41.12 0.41 0.000
[CN=67.6]
[N = 3.0:Tp 0.62]
*
* CALIB STANDHYD 2022 1 5.0 16.01 2.44 12.00 54.32 0.55 0.000
[I%=35.0:S%= 2.00]
*

*	ADD [2015+ 2022]	0802	3	5.0	24.14	2.60	12.00	49.87	n/a	0.000
*	ADD [0802+ 8021]	0802	1	5.0	179.62	9.97	12.50	45.92	n/a	0.000
*	CHANNEL [2: 0802]	0602	1	5.0	179.62	9.96	12.50	45.92	n/a	0.000
*	CALIB NASHYD [CN=81.8 [N = 3.0:Tp 0.75]	2016	1	5.0	9.08	0.55	12.67	59.47	0.60	0.000
*	ADD [2016+ 0602]	0807	3	5.0	188.70	10.49	12.50	46.58	n/a	0.000
*	CHANNEL [2: 0807]	0603	1	5.0	188.70	10.46	12.58	46.58	n/a	0.000
*	CALIB NASHYD [CN=78.4 [N = 3.0:Tp 0.72]	2017	1	5.0	4.38	0.25	12.67	53.83	0.54	0.000
*	ADD [2017+ 0603]	8031	3	5.0	193.08	10.71	12.58	46.74	n/a	0.000
*	CALIB NASHYD [CN=76.8 [N = 3.0:Tp 0.56]	0106	1	5.0	74.80	4.69	12.50	50.03	0.50	0.000
*	SHIFT [2: 0106] [SHIFT= 72.7 min]	0906	1	5.0	74.80	4.69	13.67	50.03	n/a	0.000
*	CALIB NASHYD [CN=79.1 [N = 3.0:Tp 0.45]	0105	1	5.0	27.40	2.15	12.33	52.78	0.53	0.000
*	ADD [0105+ 0906]	0808	3	5.0	102.20	5.17	13.58	50.77	n/a	0.000
*	PIPE [2: 0808]	0702	1	5.0	102.20	5.17	13.58	50.77	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2024	1	5.0	10.71	2.25	12.00	74.71	0.75	0.000
*	ADD [2024+ 0702]	0809	3	5.0	112.91	5.30	13.58	53.04	n/a	0.000
*	PIPE [2: 0809]	0703	1	5.0	112.91	5.29	13.67	53.04	n/a	0.000
*	PIPE [2: 0703]	0704	1	5.0	112.91	5.28	13.67	53.04	n/a	0.000
*	CALIB NASHYD [CN=43.9 [N = 3.0:Tp 0.47]	2018	1	5.0	9.17	0.25	12.33	20.68	0.21	0.000
*	PIPE [2: 2018]	0701	1	5.0	9.17	0.25	12.42	20.68	n/a	0.000

*	CALIB NASHYD [CN=72.5 [N = 3.0:Tp 0.66]	2012	1	5.0	8.21	0.41	12.58	45.85	0.46	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2028	1	5.0	6.70	1.70	12.00	81.74	0.82	0.000
*	ADD [2012+ 2028]	0814	3	5.0	14.91	1.86	12.00	61.98	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2025	1	5.0	6.41	1.37	12.00	74.71	0.75	0.000
*	ADD [2025+ 0814]	0801	3	5.0	21.32	3.23	12.00	65.81	n/a	0.000
*	CALIB NASHYD [CN=79.0 [N = 3.0:Tp 0.48]	20112	1	5.0	5.67	0.44	12.33	55.06	0.55	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2026	1	5.0	4.59	1.17	12.00	81.74	0.82	0.000
*	ADD [20112+ 2026]	0811	3	5.0	10.26	1.41	12.00	67.00	n/a	0.000
*	CHANNEL [2: 0811]	0607	1	5.0	10.26	1.17	12.17	66.99	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2027	1	5.0	2.09	0.54	12.00	81.74	0.82	0.000
*	ADD [2027+ 0607]	0812	3	5.0	12.35	1.60	12.00	69.49	n/a	0.000
*	CHANNEL [2: 0812]	0608	1	5.0	12.35	1.38	12.17	69.47	n/a	0.000
**	CALIB NASHYD [CN=80.8 [N = 3.0:Tp 0.37]	2031	1	5.0	4.00	0.39	12.25	56.81	0.57	0.000
*	ADD [2031+ 0608]	0813	3	5.0	16.35	1.76	12.17	66.37	n/a	0.000
*	ADD [0813+ 0801]	0813	1	5.0	37.67	4.57	12.00	66.05	n/a	0.000
*	CHANNEL [2: 0813]	0609	1	5.0	37.67	4.33	12.08	66.05	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2023	1	5.0	12.60	2.63	12.00	74.71	0.75	0.000
*	ADD [2023+ 0609]	0815	3	5.0	50.27	6.77	12.00	68.22	n/a	0.000
*	ADD [0815+ 0701]	0815	1	5.0	59.44	6.86	12.00	60.89	n/a	0.000
*	CALIB NASHYD	0301	1	5.0	6.80	1.61	12.00	59.42	0.60	0.000

```

[CN=91.7
[ N = 3.0:Tp 0.05]
*
ADD [ 0301+ 0704] 0803 3 5.0 119.71 5.34 13.67 53.40 n/a 0.000
*
ADD [ 0803+ 8031] 0803 1 5.0 312.79 13.82 12.50 49.29 n/a 0.000
*
ADD [ 0803+ 0815] 0803 3 5.0 372.23 17.11 12.42 51.14 n/a 0.000
*
** Reservoir
OUTFLOW: 0501 1 5.0 372.23 14.90 12.75 51.08 n/a 0.000
*
* CALIB NASHYD 2032 1 5.0 1.65 0.25 12.00 49.16 0.49 0.000
[CN=76.2
[ N = 3.0:Tp 0.15]
*
CHANNEL[ 2: 2032] 0605 1 5.0 1.65 0.17 12.17 48.97 n/a 0.000
*
* CALIB NASHYD 2035 1 5.0 0.38 0.04 12.17 51.05 0.51 0.000
[CN=76.0
[ N = 3.0:Tp 0.32]
*
* CALIB NASHYD 2036 1 5.0 0.42 0.08 12.00 49.14 0.49 0.000
[CN=76.0
[ N = 3.0:Tp 0.09]
*
* CALIB STANDHYD 2034 1 5.0 2.49 0.63 12.00 78.44 0.79 0.000
[I%=43.0:S%= 2.00]
*
* CALIB STANDHYD 2033 1 5.0 3.26 0.81 12.00 77.42 0.78 0.000
[I%=40.3:S%= 2.00]
*
ADD [ 2033+ 2034] 0810 3 5.0 5.75 1.44 12.00 77.86 n/a 0.000
*
ADD [ 0810+ 2035] 0810 1 5.0 6.13 1.47 12.00 76.20 n/a 0.000
*
ADD [ 0810+ 2036] 0810 3 5.0 6.55 1.55 12.00 74.46 n/a 0.000
*
ADD [ 0810+ 0501] 0810 1 5.0 378.78 15.05 12.75 51.49 n/a 0.000
*
ADD [ 0810+ 0605] 0810 3 5.0 380.43 15.11 12.75 51.48 n/a 0.000
*
FINISH
=====
=====

```

=====

V V I SSSS U U A L (v 6.0.2001)
V V I SS U U A A L
V V I SS U U A A A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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***** SUMMARY OUTPUT *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.0\VO2\voin.dat

Output filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\32e01319-4def-42a6-8cac-57d863183ae9\sce

Summary filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\32e01319-4def-42a6-8cac-57d863183ae9\sce

DATE: 04-29-2020

TIME: 09:28:48

USER:

COMMENTS: _____

** SIMULATION : 50yr SCS (MTO) **

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
		min	ha	cms	hrs	mm		cms

START @ 0.00 hrs

READ STORM 15.0

[Ptot=110.56 mm]
fname :
C:\Users\aspencer\AppData\Local\Temp\7c6ea0d9-9eca-4b34-b3ac-8357d26bac36\4acf6111-1a7f-4168-b38e-37
remark: SCS24H - 50yr (MTO)

*
** CALIB NASHYD 0101 1 5.0 43.80 4.22 12.25 60.86 0.55 0.000
[CN=77.5]
[N = 3.0:Tp 0.41]
*
CHANNEL[2: 0101] 0606 1 5.0 43.80 4.20 12.33 60.86 n/a 0.000
*
** CALIB NASHYD 0104 1 5.0 17.70 1.02 12.50 46.63 0.42 0.000
[CN=68.5]
[N = 3.0:Tp 0.56]
*
ADD [0104+ 0606] 0804 3 5.0 61.50 5.18 12.33 56.77 n/a 0.000
*
CHANNEL[2: 0804] 0604 1 5.0 61.50 5.14 12.42 56.76 n/a 0.000
*
** CALIB NASHYD 0102 1 5.0 71.90 5.15 12.42 54.83 0.50 0.000
[CN=74.2]
[N = 3.0:Tp 0.53]
*
CHANNEL[2: 0102] 0600 1 5.0 71.90 4.95 12.58 54.83 n/a 0.000
*
** CALIB NASHYD 0103 1 5.0 18.00 0.81 12.67 45.12 0.41 0.000
[CN=67.1]
[N = 3.0:Tp 0.74]
*
ADD [0103+ 0600] 0805 3 5.0 89.90 5.75 12.58 52.88 n/a 0.000
*
ADD [0604+ 0805] 0806 3 5.0 151.40 10.69 12.50 54.46 n/a 0.000
*
CHANNEL[2: 0806] 0601 1 5.0 151.40 10.67 12.50 54.46 n/a 0.000
*
** CALIB NASHYD 2014 1 5.0 4.08 0.14 12.42 26.12 0.24 0.000
[CN=45.3]
[N = 3.0:Tp 0.48]
*
ADD [2014+ 0601] 8021 3 5.0 155.48 10.80 12.50 53.72 n/a 0.000
*
** CALIB NASHYD 2015 1 5.0 8.13 0.45 12.50 48.88 0.44 0.000
[CN=67.6]
[N = 3.0:Tp 0.62]
*
* CALIB STANDHYD 2022 1 5.0 16.01 2.81 12.00 62.22 0.56 0.000
[I%=35.0:S%= 2.00]
*

*	ADD [2015+ 2022]	0802	3	5.0	24.14	3.00	12.00	57.73	n/a	0.000
*	ADD [0802+ 8021]	0802	1	5.0	179.62	11.86	12.50	54.26	n/a	0.000
*	CHANNEL [2: 0802]	0602	1	5.0	179.62	11.84	12.50	54.26	n/a	0.000
*	CALIB NASHYD [CN=81.8 [N = 3.0:Tp 0.75]	2016	1	5.0	9.08	0.64	12.67	69.14	0.63	0.000
*	ADD [2016+ 0602]	0807	3	5.0	188.70	12.47	12.50	54.97	n/a	0.000
*	CHANNEL [2: 0807]	0603	1	5.0	188.70	12.41	12.58	54.97	n/a	0.000
*	CALIB NASHYD [CN=78.4 [N = 3.0:Tp 0.72]	2017	1	5.0	4.38	0.29	12.67	63.05	0.57	0.000
*	ADD [2017+ 0603]	8031	3	5.0	193.08	12.70	12.58	55.15	n/a	0.000
*	CALIB NASHYD [CN=76.8 [N = 3.0:Tp 0.56]	0106	1	5.0	74.80	5.56	12.42	58.99	0.53	0.000
*	SHIFT [2: 0106] [SHIFT= 72.7 min]	0906	1	5.0	74.80	5.56	13.58	58.99	n/a	0.000
*	CALIB NASHYD [CN=79.1 [N = 3.0:Tp 0.45]	0105	1	5.0	27.40	2.54	12.33	62.04	0.56	0.000
*	ADD [0105+ 0906]	0808	3	5.0	102.20	6.12	13.58	59.81	n/a	0.000
*	PIPE [2: 0808]	0702	1	5.0	102.20	6.11	13.58	59.81	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2024	1	5.0	10.71	2.59	12.00	85.00	0.77	0.000
*	ADD [2024+ 0702]	0809	3	5.0	112.91	6.26	13.58	62.20	n/a	0.000
*	PIPE [2: 0809]	0703	1	5.0	112.91	6.25	13.58	62.20	n/a	0.000
*	PIPE [2: 0703]	0704	1	5.0	112.91	6.24	13.67	62.20	n/a	0.000
*	CALIB NASHYD [CN=43.9 [N = 3.0:Tp 0.47]	2018	1	5.0	9.17	0.31	12.33	25.26	0.23	0.000
*	PIPE [2: 2018]	0701	1	5.0	9.17	0.31	12.42	25.26	n/a	0.000

*	CALIB NASHYD [CN=72.5 [N = 3.0:Tp 0.66]	2012	1	5.0	8.21	0.49	12.58	54.26	0.49	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2028	1	5.0	6.70	1.93	12.00	92.42	0.84	0.000
*	ADD [2012+ 2028]	0814	3	5.0	14.91	2.13	12.00	71.41	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2025	1	5.0	6.41	1.72	12.00	85.00	0.77	0.000
*	ADD [2025+ 0814]	0801	3	5.0	21.32	3.85	12.00	75.49	n/a	0.000
*	CALIB NASHYD [CN=79.0 [N = 3.0:Tp 0.48]	20112	1	5.0	5.67	0.52	12.33	64.37	0.58	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2026	1	5.0	4.59	1.34	12.00	92.42	0.84	0.000
*	ADD [20112+ 2026]	0811	3	5.0	10.26	1.62	12.00	76.92	n/a	0.000
*	CHANNEL [2: 0811]	0607	1	5.0	10.26	1.35	12.08	76.91	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2027	1	5.0	2.09	0.62	12.00	92.41	0.84	0.000
*	ADD [2027+ 0607]	0812	3	5.0	12.35	1.85	12.00	79.54	n/a	0.000
*	CHANNEL [2: 0812]	0608	1	5.0	12.35	1.57	12.17	79.52	n/a	0.000
**	CALIB NASHYD [CN=80.8 [N = 3.0:Tp 0.37]	2031	1	5.0	4.00	0.46	12.25	66.33	0.60	0.000
*	ADD [2031+ 0608]	0813	3	5.0	16.35	2.02	12.17	76.29	n/a	0.000
*	ADD [0813+ 0801]	0813	1	5.0	37.67	5.42	12.00	75.84	n/a	0.000
*	CHANNEL [2: 0813]	0609	1	5.0	37.67	5.08	12.08	75.84	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2023	1	5.0	12.60	3.03	12.00	85.00	0.77	0.000
*	ADD [2023+ 0609]	0815	3	5.0	50.27	8.01	12.00	78.14	n/a	0.000
*	ADD [0815+ 0701]	0815	1	5.0	59.44	8.13	12.00	69.98	n/a	0.000
*	CALIB NASHYD	0301	1	5.0	6.80	1.81	12.00	67.62	0.61	0.000

```

[CN=91.7
[ N = 3.0:Tp 0.05]
*
ADD [ 0301+ 0704] 0803 3 5.0 119.71 6.31 13.67 62.51 n/a 0.000
*
ADD [ 0803+ 8031] 0803 1 5.0 312.79 16.38 12.50 57.97 n/a 0.000
*
ADD [ 0803+ 0815] 0803 3 5.0 372.23 20.04 12.50 59.89 n/a 0.000
*
** Reservoir
OUTFLOW: 0501 1 5.0 372.23 18.68 12.67 59.83 n/a 0.000
*
* CALIB NASHYD 2032 1 5.0 1.65 0.30 12.00 57.99 0.52 0.000
[CN=76.2
[ N = 3.0:Tp 0.15]
*
CHANNEL[ 2: 2032] 0605 1 5.0 1.65 0.21 12.17 57.80 n/a 0.000
*
* CALIB NASHYD 2035 1 5.0 0.38 0.04 12.17 59.96 0.54 0.000
[CN=76.0
[ N = 3.0:Tp 0.32]
*
* CALIB NASHYD 2036 1 5.0 0.42 0.10 12.00 57.72 0.52 0.000
[CN=76.0
[ N = 3.0:Tp 0.09]
*
* CALIB STANDHYD 2034 1 5.0 2.49 0.72 12.00 88.89 0.80 0.000
[I%=43.0:S%= 2.00]
*
* CALIB STANDHYD 2033 1 5.0 3.26 0.93 12.00 87.83 0.79 0.000
[I%=40.3:S%= 2.00]
*
ADD [ 2033+ 2034] 0810 3 5.0 5.75 1.65 12.00 88.29 n/a 0.000
*
ADD [ 0810+ 2035] 0810 1 5.0 6.13 1.68 12.00 86.53 n/a 0.000
*
ADD [ 0810+ 2036] 0810 3 5.0 6.55 1.78 12.00 84.68 n/a 0.000
*
ADD [ 0810+ 0501] 0810 1 5.0 378.78 18.87 12.67 60.26 n/a 0.000
*
ADD [ 0810+ 0605] 0810 3 5.0 380.43 18.94 12.67 60.25 n/a 0.000
*
FINISH
=====
=====

```

=====

V V I SSSSS U U A L (v 6.0.2001)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL

000 TTTTT TTTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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***** SUMMARY OUTPUT *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.0\VO2\voin.dat

Output filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\6a1aae7d-c8d3-4633-b8cc-6e47d4a2fa36\sce

Summary filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\6a1aae7d-c8d3-4633-b8cc-6e47d4a2fa36\sce

DATE: 04-29-2020

TIME: 09:30:09

USER:

COMMENTS: _____

** SIMULATION : 100yr SCS (MTO) **

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
		min	ha	cms	hrs	mm		cms

START @ 0.00 hrs

READ STORM 15.0

[Ptot=121.44 mm]
fname :
C:\Users\aspencer\AppData\Local\Temp\bd74ce4a-71db-4b69-b492-c82ce0450a4a\0a8b5e28-f19c-4d53-ba6b-e1
remark: SCS24H - 100yr (MTO)

*
** CALIB NASHYD 0101 1 5.0 43.80 4.87 12.25 69.98 0.58 0.000
[CN=77.5]
[N = 3.0:Tp 0.41]
*
CHANNEL[2: 0101] 0606 1 5.0 43.80 4.84 12.33 69.98 n/a 0.000
*
** CALIB NASHYD 0104 1 5.0 17.70 1.20 12.50 54.53 0.45 0.000
[CN=68.5]
[N = 3.0:Tp 0.56]
*
ADD [0104+ 0606] 0804 3 5.0 61.50 6.00 12.33 65.53 n/a 0.000
*
CHANNEL[2: 0804] 0604 1 5.0 61.50 5.94 12.42 65.53 n/a 0.000
*
** CALIB NASHYD 0102 1 5.0 71.90 5.99 12.42 63.49 0.52 0.000
[CN=74.2]
[N = 3.0:Tp 0.53]
*
CHANNEL[2: 0102] 0600 1 5.0 71.90 5.75 12.58 63.49 n/a 0.000
*
** CALIB NASHYD 0103 1 5.0 18.00 0.96 12.67 52.83 0.44 0.000
[CN=67.1]
[N = 3.0:Tp 0.74]
*
ADD [0103+ 0600] 0805 3 5.0 89.90 6.70 12.58 61.36 n/a 0.000
*
ADD [0604+ 0805] 0806 3 5.0 151.40 12.41 12.50 63.05 n/a 0.000
*
CHANNEL[2: 0806] 0601 1 5.0 151.40 12.39 12.50 63.05 n/a 0.000
*
** CALIB NASHYD 2014 1 5.0 4.08 0.17 12.42 31.08 0.26 0.000
[CN=45.3]
[N = 3.0:Tp 0.48]
*
ADD [2014+ 0601] 8021 3 5.0 155.48 12.55 12.50 62.21 n/a 0.000
*
** CALIB NASHYD 2015 1 5.0 8.13 0.53 12.50 56.78 0.47 0.000
[CN=67.6]
[N = 3.0:Tp 0.62]
*
* CALIB STANDHYD 2022 1 5.0 16.01 3.18 12.00 70.16 0.58 0.000
[I%=35.0:S%= 2.00]
*

*	ADD [2015+ 2022]	0802	3	5.0	24.14	3.40	12.00	65.65	n/a	0.000
*	ADD [0802+ 8021]	0802	1	5.0	179.62	13.76	12.50	62.67	n/a	0.000
*	CHANNEL [2: 0802]	0602	1	5.0	179.62	13.73	12.50	62.67	n/a	0.000
*	CALIB NASHYD [CN=81.8 [N = 3.0:Tp 0.75]	2016	1	5.0	9.08	0.73	12.67	78.79	0.65	0.000
*	ADD [2016+ 0602]	0807	3	5.0	188.70	14.44	12.50	63.45	n/a	0.000
*	CHANNEL [2: 0807]	0603	1	5.0	188.70	14.39	12.50	63.45	n/a	0.000
*	CALIB NASHYD [CN=78.4 [N = 3.0:Tp 0.72]	2017	1	5.0	4.38	0.33	12.67	72.30	0.60	0.000
*	ADD [2017+ 0603]	8031	3	5.0	193.08	14.72	12.50	63.65	n/a	0.000
*	CALIB NASHYD [CN=76.8 [N = 3.0:Tp 0.56]	0106	1	5.0	74.80	6.43	12.42	68.00	0.56	0.000
*	SHIFT [2: 0106] [SHIFT= 72.7 min]	0906	1	5.0	74.80	6.43	13.58	68.00	n/a	0.000
*	CALIB NASHYD [CN=79.1 [N = 3.0:Tp 0.45]	0105	1	5.0	27.40	2.93	12.33	71.32	0.59	0.000
*	ADD [0105+ 0906]	0808	3	5.0	102.20	7.07	13.58	68.89	n/a	0.000
*	PIPE [2: 0808]	0702	1	5.0	102.20	7.06	13.58	68.89	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2024	1	5.0	10.71	3.19	12.00	95.17	0.78	0.000
*	ADD [2024+ 0702]	0809	3	5.0	112.91	7.23	13.58	71.38	n/a	0.000
*	PIPE [2: 0809]	0703	1	5.0	112.91	7.21	13.58	71.38	n/a	0.000
*	PIPE [2: 0703]	0704	1	5.0	112.91	7.20	13.67	71.38	n/a	0.000
*	CALIB NASHYD [CN=43.9 [N = 3.0:Tp 0.47]	2018	1	5.0	9.17	0.37	12.33	30.05	0.25	0.000
*	PIPE [2: 2018]	0701	1	5.0	9.17	0.37	12.42	30.05	n/a	0.000

*	CALIB NASHYD [CN=72.5 [N = 3.0:Tp 0.66]	2012	1	5.0	8.21	0.57	12.58	62.76	0.52	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2028	1	5.0	6.70	2.17	12.00	102.92	0.85	0.000
*	ADD [2012+ 2028]	0814	3	5.0	14.91	2.40	12.00	80.81	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2025	1	5.0	6.41	1.94	12.00	95.17	0.78	0.000
*	ADD [2025+ 0814]	0801	3	5.0	21.32	4.34	12.00	85.13	n/a	0.000
*	CALIB NASHYD [CN=79.0 [N = 3.0:Tp 0.48]	20112	1	5.0	5.67	0.59	12.33	73.70	0.61	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2026	1	5.0	4.59	1.50	12.00	102.92	0.85	0.000
*	ADD [20112+ 2026]	0811	3	5.0	10.26	1.83	12.00	86.77	n/a	0.000
*	CHANNEL [2: 0811]	0607	1	5.0	10.26	1.50	12.08	86.76	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2027	1	5.0	2.09	0.70	12.00	102.92	0.85	0.000
*	ADD [2027+ 0607]	0812	3	5.0	12.35	2.05	12.00	89.50	n/a	0.000
*	CHANNEL [2: 0812]	0608	1	5.0	12.35	1.72	12.17	89.48	n/a	0.000
**	CALIB NASHYD [CN=80.8 [N = 3.0:Tp 0.37]	2031	1	5.0	4.00	0.52	12.25	75.84	0.62	0.000
*	ADD [2031+ 0608]	0813	3	5.0	16.35	2.24	12.17	86.14	n/a	0.000
*	ADD [0813+ 0801]	0813	1	5.0	37.67	6.05	12.00	85.57	n/a	0.000
*	CHANNEL [2: 0813]	0609	1	5.0	37.67	5.67	12.08	85.57	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2023	1	5.0	12.60	3.42	12.00	95.17	0.78	0.000
*	ADD [2023+ 0609]	0815	3	5.0	50.27	9.00	12.00	87.97	n/a	0.000
*	ADD [0815+ 0701]	0815	1	5.0	59.44	9.14	12.00	79.04	n/a	0.000
*	CALIB NASHYD	0301	1	5.0	6.80	2.01	12.00	75.68	0.62	0.000

```

[CN=91.7
[ N = 3.0:Tp 0.05]
*
ADD [ 0301+ 0704] 0803 3 5.0 119.71 7.27 13.67 71.63 n/a 0.000
*
ADD [ 0803+ 8031] 0803 1 5.0 312.79 18.88 12.50 66.70 n/a 0.000
*
ADD [ 0803+ 0815] 0803 3 5.0 372.23 23.01 12.50 68.67 n/a 0.000
*
** Reservoir
OUTFLOW: 0501 1 5.0 372.23 22.04 12.58 68.61 n/a 0.000
*
* CALIB NASHYD 2032 1 5.0 1.65 0.35 12.00 66.88 0.55 0.000
[CN=76.2
[ N = 3.0:Tp 0.15]
*
CHANNEL[ 2: 2032] 0605 1 5.0 1.65 0.24 12.17 66.68 n/a 0.000
*
* CALIB NASHYD 2035 1 5.0 0.38 0.05 12.17 68.92 0.57 0.000
[CN=76.0
[ N = 3.0:Tp 0.32]
*
* CALIB NASHYD 2036 1 5.0 0.42 0.11 12.00 66.34 0.55 0.000
[CN=76.0
[ N = 3.0:Tp 0.09]
*
* CALIB STANDHYD 2034 1 5.0 2.49 0.81 12.00 99.20 0.82 0.000
[I%=43.0:S%= 2.00]
*
* CALIB STANDHYD 2033 1 5.0 3.26 1.04 12.00 98.10 0.81 0.000
[I%=40.3:S%= 2.00]
*
ADD [ 2033+ 2034] 0810 3 5.0 5.75 1.85 12.00 98.58 n/a 0.000
*
ADD [ 0810+ 2035] 0810 1 5.0 6.13 1.89 12.00 96.74 n/a 0.000
*
ADD [ 0810+ 2036] 0810 3 5.0 6.55 2.00 12.00 94.79 n/a 0.000
*
ADD [ 0810+ 0501] 0810 1 5.0 378.78 22.30 12.58 69.07 n/a 0.000
*
ADD [ 0810+ 0605] 0810 3 5.0 380.43 22.40 12.58 69.06 n/a 0.000
*
FINISH
=====
=====

```

=====

V V I SSSS U U A L (v 6.0.2001)
V V I SS U U A A L
V V I SS U U A A A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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***** SUMMARY OUTPUT *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.0\VO2\voin.dat

Output filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\d5
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Summary filename:

C:\Users\aspencer\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\d5
0cd577-bba9-4b66-9417-90cf4c2f523d\sce

DATE: 04-29-2020

TIME: 09:30:41

USER:

COMMENTS: _____

** SIMULATION : Regional (Timmins) **

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
		min	ha	cms	hrs	mm		cms

START @ 0.00 hrs

READ STORM 15.0

[Ptot=193.00 mm]
fname :
C:\Users\aspencer\AppData\Local\Temp\5d7c95e2-192d-4011-a45d-488edf770ebc\8e42be59
-b8a2-4cef-96f5-0a
remark: TIMMINS

*
** CALIB NASHYD 0101 1 5.0 43.80 3.90 7.08 133.60 0.69 0.000
[CN=77.5]
[N = 3.0:Tp 0.41]
*
CHANNEL[2: 0101] 0606 1 5.0 43.80 3.88 7.17 133.60 n/a 0.000
*
** CALIB NASHYD 0104 1 5.0 17.70 1.21 7.25 111.86 0.58 0.000
[CN=68.5]
[N = 3.0:Tp 0.56]
*
ADD [0104+ 0606] 0804 3 5.0 61.50 5.08 7.17 127.34 n/a 0.000
*
CHANNEL[2: 0804] 0604 1 5.0 61.50 5.05 7.17 127.34 n/a 0.000
*
** CALIB NASHYD 0102 1 5.0 71.90 5.60 7.17 124.88 0.65 0.000
[CN=74.2]
[N = 3.0:Tp 0.53]
*
CHANNEL[2: 0102] 0600 1 5.0 71.90 5.49 7.33 124.88 n/a 0.000
*
** CALIB NASHYD 0103 1 5.0 18.00 1.08 7.42 109.14 0.57 0.000
[CN=67.1]
[N = 3.0:Tp 0.74]
*
ADD [0103+ 0600] 0805 3 5.0 89.90 6.56 7.33 121.73 n/a 0.000
*
ADD [0604+ 0805] 0806 3 5.0 151.40 11.56 7.25 124.01 n/a 0.000
*
CHANNEL[2: 0806] 0601 1 5.0 151.40 11.53 7.33 124.01 n/a 0.000
*
** CALIB NASHYD 2014 1 5.0 4.08 0.17 7.17 70.19 0.36 0.000
[CN=45.3]
[N = 3.0:Tp 0.48]
*
ADD [2014+ 0601] 8021 3 5.0 155.48 11.70 7.33 122.59 n/a 0.000
*
** CALIB NASHYD 2015 1 5.0 8.13 0.54 7.25 113.95 0.59 0.000
[CN=67.6]
[N = 3.0:Tp 0.62]
*
** CALIB STANDHYD 2022 1 5.0 16.01 1.31 7.00 126.45 0.66 0.000
[I%=35.0:S%= 2.00]
*

*	ADD [2015+ 2022]	0802	3	5.0	24.14	1.80	7.00	122.24	n/a	0.000
*	ADD [0802+ 8021]	0802	1	5.0	179.62	13.17	7.25	122.55	n/a	0.000
*	CHANNEL [2: 0802]	0602	1	5.0	179.62	13.18	7.25	122.55	n/a	0.000
**	CALIB NASHYD [CN=81.8 [N = 3.0:Tp 0.75]	2016	1	5.0	9.08	0.71	7.42	144.97	0.75	0.000
*	ADD [2016+ 0602]	0807	3	5.0	188.70	13.89	7.25	123.63	n/a	0.000
*	CHANNEL [2: 0807]	0603	1	5.0	188.70	13.86	7.33	123.63	n/a	0.000
**	CALIB NASHYD [CN=78.4 [N = 3.0:Tp 0.72]	2017	1	5.0	4.38	0.33	7.33	136.54	0.71	0.000
*	ADD [2017+ 0603]	8031	3	5.0	193.08	14.19	7.33	123.92	n/a	0.000
**	CALIB NASHYD [CN=76.8 [N = 3.0:Tp 0.56]	0106	1	5.0	74.80	5.99	7.25	131.13	0.68	0.000
*	SHIFT [2: 0106] [SHIFT= 72.7 min]	0906	1	5.0	74.80	5.99	8.42	131.13	n/a	0.000
**	CALIB NASHYD [CN=79.1 [N = 3.0:Tp 0.45]	0105	1	5.0	27.40	2.43	7.08	135.81	0.70	0.000
*	ADD [0105+ 0906]	0808	3	5.0	102.20	7.45	8.42	132.38	n/a	0.000
*	PIPE [2: 0808]	0702	1	5.0	102.20	7.46	8.42	132.38	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2024	1	5.0	10.71	1.16	7.00	163.66	0.85	0.000
*	ADD [2024+ 0702]	0809	3	5.0	112.91	8.09	8.42	135.35	n/a	0.000
*	PIPE [2: 0809]	0703	1	5.0	112.91	8.09	8.42	135.35	n/a	0.000
*	PIPE [2: 0703]	0704	1	5.0	112.91	8.06	8.50	135.35	n/a	0.000
*	CALIB NASHYD [CN=43.9 [N = 3.0:Tp 0.47]	2018	1	5.0	9.17	0.38	7.17	68.05	0.35	0.000
*	PIPE [2: 2018]	0701	1	5.0	9.17	0.38	7.25	68.05	n/a	0.000

*	CALIB NASHYD [CN=72.5 [N = 3.0:Tp 0.66]	2012	1	5.0	8.21	0.58	7.33	123.24	0.64	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2028	1	5.0	6.70	0.76	7.00	172.90	0.90	0.000
*	ADD [2012+ 2028]	0814	3	5.0	14.91	1.28	7.00	145.55	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2025	1	5.0	6.41	0.70	7.00	163.66	0.85	0.000
*	ADD [2025+ 0814]	0801	3	5.0	21.32	1.98	7.00	151.00	n/a	0.000
*	CALIB NASHYD [CN=79.0 [N = 3.0:Tp 0.48]	20112	1	5.0	5.67	0.50	7.17	138.31	0.72	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2026	1	5.0	4.59	0.52	7.00	172.90	0.90	0.000
*	ADD [20112+ 2026]	0811	3	5.0	10.26	1.01	7.00	153.79	n/a	0.000
*	CHANNEL [2: 0811]	0607	1	5.0	10.26	0.98	7.08	153.78	n/a	0.000
*	CALIB STANDHYD [I%=35.0:S%= 2.00]	2027	1	5.0	2.09	0.24	7.00	172.90	0.90	0.000
*	ADD [2027+ 0607]	0812	3	5.0	12.35	1.22	7.00	157.02	n/a	0.000
*	CHANNEL [2: 0812]	0608	1	5.0	12.35	1.19	7.08	157.00	n/a	0.000
**	CALIB NASHYD [CN=80.8 [N = 3.0:Tp 0.37]	2031	1	5.0	4.00	0.38	7.08	141.40	0.73	0.000
*	ADD [2031+ 0608]	0813	3	5.0	16.35	1.58	7.08	153.18	n/a	0.000
*	ADD [0813+ 0801]	0813	1	5.0	37.67	3.55	7.00	151.95	n/a	0.000
*	CHANNEL [2: 0813]	0609	1	5.0	37.67	3.51	7.00	151.95	n/a	0.000
**	CALIB STANDHYD [I%=35.0:S%= 2.00]	2023	1	5.0	12.60	1.36	7.00	163.66	0.85	0.000
*	ADD [2023+ 0609]	0815	3	5.0	50.27	4.87	7.00	154.88	n/a	0.000
*	ADD [0815+ 0701]	0815	1	5.0	59.44	5.23	7.00	141.49	n/a	0.000
**	CALIB NASHYD	0301	1	5.0	6.80	0.60	7.00	129.32	0.67	0.000

```

[CN=91.7
 [ N = 3.0:Tp 0.05]
*
ADD [ 0301+ 0704] 0803 3 5.0 119.71 8.39 8.50 135.01 n/a 0.000
*
ADD [ 0803+ 8031] 0803 1 5.0 312.79 19.96 7.33 128.16 n/a 0.000
*
ADD [ 0803+ 0815] 0803 3 5.0 372.23 24.43 7.17 130.29 n/a 0.000
*
** Reservoir
OUTFLOW: 0501 1 5.0 372.23 24.27 7.33 130.24 n/a 0.000
*
** CALIB NASHYD 2032 1 5.0 1.65 0.16 7.00 129.29 0.67 0.000
[CN=76.2
 [ N = 3.0:Tp 0.15]
*
CHANNEL[ 2: 2032] 0605 1 5.0 1.65 0.15 7.00 129.09 n/a 0.000
*
** CALIB NASHYD 2035 1 5.0 0.38 0.03 7.00 131.74 0.68 0.000
[CN=76.0
 [ N = 3.0:Tp 0.32]
*
** CALIB NASHYD 2036 1 5.0 0.42 0.04 7.00 126.80 0.66 0.000
[CN=76.0
 [ N = 3.0:Tp 0.09]
*
* CALIB STANDHYD 2034 1 5.0 2.49 0.28 7.00 168.29 0.87 0.000
[I%=43.0:S%= 2.00]
*
* CALIB STANDHYD 2033 1 5.0 3.26 0.36 7.00 167.06 0.87 0.000
[I%=40.3:S%= 2.00]
*
ADD [ 2033+ 2034] 0810 3 5.0 5.75 0.64 7.00 167.59 n/a 0.000
*
ADD [ 0810+ 2035] 0810 1 5.0 6.13 0.67 7.00 165.37 n/a 0.000
*
ADD [ 0810+ 2036] 0810 3 5.0 6.55 0.71 7.00 162.90 n/a 0.000
*
ADD [ 0810+ 0501] 0810 1 5.0 378.78 24.69 7.25 130.81 n/a 0.000
*
ADD [ 0810+ 0605] 0810 3 5.0 380.43 24.82 7.25 130.80 n/a 0.000
*
FINISH
=====
=====

```

Appendix F

CFCA Updated Storm Sewer Design Sheet – Site Only
CFCA Updated Interceptor Ditch Modelling
CFCA Updated 900mm dia. Culvert Modelling
CFCA Updated West Ridge Drive Sag/Low Point Modelling
GSCA Safe Access Excerpt
CFCA Updated Block 41 Ditch Modelling
CFCA Updated Golf Course Ditch and Culvert Modelling
CFCA Updated OTT HYMO Model Output (Ultimate
Conditions)



LORA BAY PHASE 4 BLOCK 39
 5 YEAR - STORM SEWER DESIGN MODEL

DESIGN: Z. Holland
 CHECK: A. Spencer
 UPDATED: June 25, 2021

FREQUENCY		5 YEARS - Owen Sound IDF				100 YEARS - Owen Sound IDF			
5 YEARS	Coef. A=	29.1	Coef. B=	-0.724	Coef. A=	47.7	Coef. B=	-0.738	

TIME OF CONCENTRATION 15.00 MANNINGS "n" 0.013

CATCHMENT AREA I.D.	FR MH NO	TO MH NO	AREA (A) Ha	RUN-OFF COEFF (C _s)	A x C	Cummul. A x C	TIME OF CONC. (min.)	I (mm/hr)	Q (l/sec)	SLOPE (%)	PIPE DIA. (mm)	VEL. (m/sec)	LENGTH (m)	TIME OF FLOW (min)	CAPACITY (l/sec)	FALL (m)	PIPE INV ELEV.		GROUND ELEV.		COVER	
																	UPPER END	LOWER END	UPPER END	LOWER END	UPPER END	LOWER END
South																						
7	CB#1	STMH#6	0.15	0.50	0.075	0.075	15.00	79.39	16.55	0.50	300	0.97	18.7	0.32	68.38	0.09	208.06	207.97	209.77	209.53	1.41	1.26
10	CB#2	STMH#6	0.20	0.50	0.100	0.100	15.00	79.39	22.07	0.50	300	0.97	13.3	0.23	68.38	0.07	208.04	207.97	209.77	209.53	1.43	1.26
-	STMH#6	STMH#5	0.00	0.00	0.000	0.175	15.32	78.18	38.04	0.50	300	0.97	14.0	0.24	68.38	0.07	207.89	207.82	209.53	209.34	1.34	1.22
-	STMH#5	CBMH#4	0.00	0.00	0.000	0.175	15.56	77.30	37.61	0.50	300	0.97	8.8	0.15	68.38	-	207.77	207.73	209.34	209.15	1.27	1.12
8	CBMH#4	STMH#3	0.16	0.50	0.080	0.255	15.72	76.76	54.42	0.50	300	0.97	11.2	0.19	68.38	-	207.70	207.64	209.15	208.98	1.15	1.04
4	STMH#3	DCBMH#2	0.11	0.50	0.055	0.310	15.91	76.09	65.57	0.65	300	1.10	25.9	0.39	77.96	-	207.56	207.39	208.98	209.28	1.12	1.59
5	DCBMH#2	STMH#1	0.11	0.50	0.055	0.365	16.30	74.76	75.86	0.45	375	1.06	19.9	0.31	117.62	-	207.25	207.16	209.28	207.67	1.66	0.13
2	STMH#1	Storm Stub	0.09	0.50	0.045	0.410	16.61	73.74	84.05	0.50	375	1.12	11.7	0.17	123.98	-	207.08	207.02	207.67	-	0.22	-
North																						
9	CB#4	STMH#8	0.06	0.50	0.030	0.030	15.00	79.39	6.62	0.99	300	1.36	15.5	0.19	96.22	0.15	206.11	205.96	207.93	207.85	1.52	1.59
-	CB#3	STMH#8	0.00	0.00	0.000	0.000	15.00	79.39	0.00	0.50	300	0.97	14.0	0.24	68.38	0.07	205.61	205.54	208.18	207.85	2.27	2.01
-	STMH#8	CBMH#7	0.00	0.00	0.000	0.030	15.24	78.48	6.55	0.50	300	0.97	38.6	0.67	68.38	0.19	205.46	205.27	207.85	207.65	2.09	2.08
3	CBMH#7	Ditch	0.13	0.50	0.065	0.095	15.91	76.09	20.10	1.03	300	1.39	8.8	0.11	98.14	0.09	205.19	205.10	207.65	-	2.16	-

Worksheet for Interceptor Ditch - 100 YR SCS Storm, 0.5% Slope

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.00500	m/m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)
Discharge	2.22	m ³ /s

Results

Normal Depth	0.83	m
Flow Area	2.05	m ²
Wetted Perimeter	5.23	m
Hydraulic Radius	0.39	m
Top Width	4.96	m
Critical Depth	0.65	m
Critical Slope	0.01879	m/m
Velocity	1.08	m/s
Velocity Head	0.06	m
Specific Energy	0.89	m
Froude Number	0.54	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.83	m
Critical Depth	0.65	m
Channel Slope	0.00500	m/m
Critical Slope	0.01879	m/m

Cross Section for Interceptor Ditch - 100 YR SCS Storm, 0.5% Slope

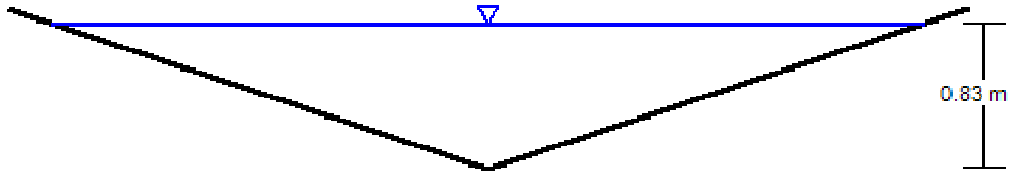
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.035
Channel Slope	0.00500 m/m
Normal Depth	0.83 m
Left Side Slope	3.00 m/m (H:V)
Right Side Slope	3.00 m/m (H:V)
Discharge	2.22 m ³ /s

Cross Section Image



V: 1
H: 1

Worksheet for Interceptor Ditch - 100 YR SCS Storm, 1.3% Slope

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.01300	m/m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)
Discharge	2.22	m ³ /s

Results

Normal Depth	0.69	m
Flow Area	1.43	m ²
Wetted Perimeter	4.37	m
Hydraulic Radius	0.33	m
Top Width	4.15	m
Critical Depth	0.65	m
Critical Slope	0.01879	m/m
Velocity	1.55	m/s
Velocity Head	0.12	m
Specific Energy	0.81	m
Froude Number	0.84	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.69	m
Critical Depth	0.65	m
Channel Slope	0.01300	m/m
Critical Slope	0.01879	m/m

Cross Section for Interceptor Ditch - 100 YR SCS Storm, 1.3% Slope

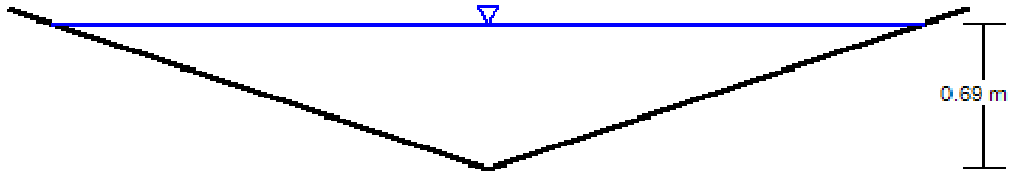
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.035
Channel Slope	0.01300 m/m
Normal Depth	0.69 m
Left Side Slope	3.00 m/m (H:V)
Right Side Slope	3.00 m/m (H:V)
Discharge	2.22 m ³ /s

Cross Section Image



V: 1
H: 1

Worksheet for Downstream of 900mm dia. Culvert Crossing - 25 YR

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00500 m/m
Discharge 4.48 m³/s
Section Definitions

Station (m)	Elevation (m)
0+00	203.77
0+05	202.27
0+11	203.77

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 203.77)	(0+11, 203.77)	0.035

Options

Current Roughness Weighted Method Pavlovskii's Method
Open Channel Weighting Method Pavlovskii's Method
Closed Channel Weighting Method Pavlovskii's Method

Results

Normal Depth 1.00 m
Elevation Range 202.27 to 203.77 m
Flow Area 3.61 m²
Wetted Perimeter 7.49 m
Hydraulic Radius 0.48 m
Top Width 7.22 m
Normal Depth 1.00 m
Critical Depth 0.79 m
Critical Slope 0.01718 m/m
Velocity 1.24 m/s

Worksheet for Downstream of 900mm dia. Culvert Crossing - 25 YR

Results

Velocity Head	0.08	m
Specific Energy	1.08	m
Froude Number	0.56	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	1.00	m
Critical Depth	0.79	m
Channel Slope	0.00500	m/m
Critical Slope	0.01718	m/m

Cross Section for Downstream of 900mm dia. Culvert Crossing - 25 YR

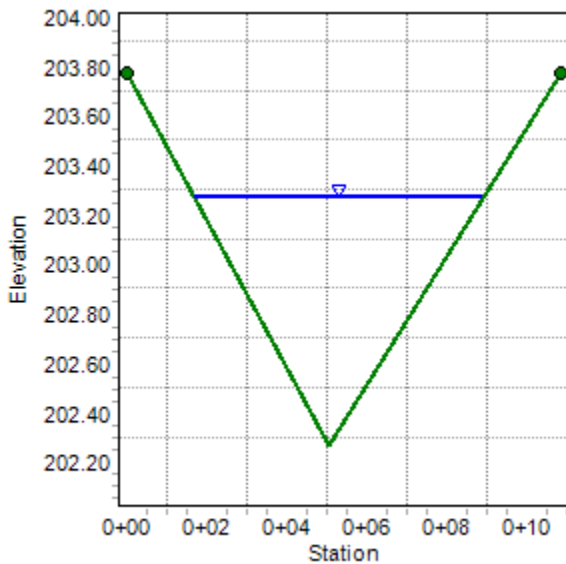
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope	0.00500	m/m
Normal Depth	1.00	m
Discharge	4.48	m ³ /s

Cross Section Image



Culvert Calculator Report

900mm dia. Culvert Crossing Lot 2 Phase 4 (Updated Modelling)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	203.85 m	Headwater Depth/Height	1.65
Computed Headwater Elevation	203.85 m	Discharge	1.8572 m ³ /s
Inlet Control HW Elev.	203.80 m	Tailwater Elevation	203.27 m
Outlet Control HW Elev.	203.85 m	Control Type	Outlet Control

Grades			
Upstream Invert	202.34 m	Downstream Invert	202.29 m
Length	11.00 m	Constructed Slope	0.004545 m/m

Hydraulic Profile			
Profile	Pressure Profile	Depth, Downstream	0.98 m
Slope Type	N/A	Normal Depth	N/A m
Flow Regime	N/A	Critical Depth	0.79 m
Velocity Downstream	2.83 m/s	Critical Slope	0.007574 m/m

Section			
Section Shape	Circular	Mannings Coefficient	0.012
Section Material	corrugated HDPE (Smooth Interior)	Span	0.91 m
Section Size	900 mm	Rise	0.91 m
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	203.85 m	Upstream Velocity Head	0.41 m
Ke	0.20	Entrance Loss	0.08 m

Inlet Control Properties			
Inlet Control HW Elev.	203.80 m	Flow Control	N/A
Inlet Type	Groove end projecting	Area Full	0.7 m ²
K	0.00450	HDS 5 Chart	1
M	2.00000	HDS 5 Scale	3
C	0.03170	Equation Form	1
Y	0.69000		

Worksheet for Downstream of 900mm dia. Culvert Crossing - 100 YR

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00500 m/m
Discharge 5.90 m³/s
Section Definitions

Station (m)	Elevation (m)
0+00	203.77
0+05	202.27
0+11	203.77

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 203.77)	(0+11, 203.77)	0.035

Options

Current Roughness Weighted Method Pavlovskii's Method
Open Channel Weighting Method Pavlovskii's Method
Closed Channel Weighting Method Pavlovskii's Method

Results

Normal Depth 1.11 m
Elevation Range 202.27 to 203.77 m
Flow Area 4.44 m²
Wetted Perimeter 8.31 m
Hydraulic Radius 0.53 m
Top Width 8.00 m
Normal Depth 1.11 m
Critical Depth 0.89 m
Critical Slope 0.01656 m/m
Velocity 1.33 m/s

Worksheet for Downstream of 900mm dia. Culvert Crossing - 100 YR

Results

Velocity Head	0.09	m
Specific Energy	1.20	m
Froude Number	0.57	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	1.11	m
Critical Depth	0.89	m
Channel Slope	0.00500	m/m
Critical Slope	0.01656	m/m

Cross Section for Downstream of 900mm dia. Culvert Crossing - 100

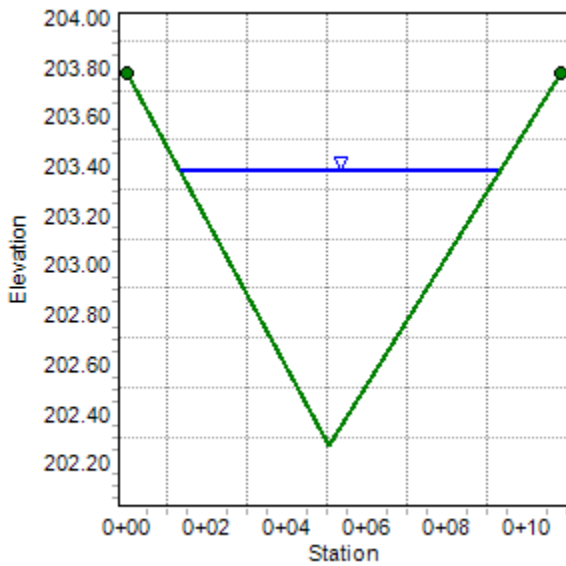
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00500 m/m
Normal Depth 1.11 m
Discharge 5.90 m³/s

Cross Section Image



Worksheet for Overtopping 900mm dia. Culvert Crossing - 100 YR SCS

Project Description

Solve For Headwater Elevation

Input Data

Discharge		0.37	m ³ /s
Crest Elevation		203.85	m
Tailwater Elevation		203.38	m
Crest Surface Type	Paved		
Crest Breadth		6.00	m
Crest Length		10.00	m

Results

Headwater Elevation	203.93	m
Headwater Height Above Crest	0.08	m
Tailwater Height Above Crest	-0.47	m
Weir Coefficient	1.64	SI
Submergence Factor	1.00	
Adjusted Weir Coefficient	1.64	SI
Flow Area	0.80	m ²
Velocity	0.46	m/s
Wetted Perimeter	10.16	m
Top Width	10.00	m

Cross Section for Overtopping 900mm dia. Culvert Crossing - 100 YR

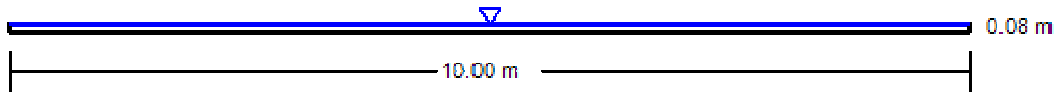
Project Description

Solve For Headwater Elevation

Input Data

Discharge		0.37	m ³ /s
Headwater Elevation		203.93	m
Crest Elevation		203.85	m
Tailwater Elevation		203.38	m
Crest Surface Type	Paved		
Crest Breadth		6.00	m
Crest Length		10.00	m

Cross Section Image



V: 1
H: 1

Worksheet for West Ridge Drive Overtopping - 100 YR SCS Storm

Project Description

Solve For Headwater Elevation

Input Data

Discharge		1.30	m ³ /s
Crest Elevation		206.65	m
Tailwater Elevation		206.65	m
Crest Surface Type	Paved		
Crest Breadth		20.00	m
Crest Length		58.00	m

Results

Headwater Elevation		206.71	m
Headwater Height Above Crest		0.06	m
Tailwater Height Above Crest		0.00	m
Weir Coefficient		1.63	SI
Submergence Factor		1.00	
Adjusted Weir Coefficient		1.63	SI
Flow Area		3.33	m ²
Velocity		0.39	m/s
Wetted Perimeter		58.11	m
Top Width		58.00	m

Cross Section for West Ridge Drive Overtopping - 100 YR SCS Storm

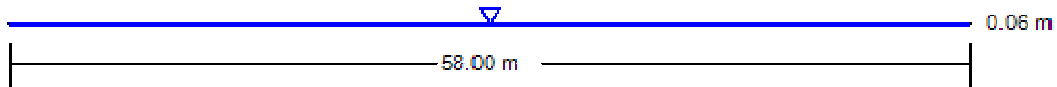
Project Description

Solve For Headwater Elevation

Input Data

Discharge		1.30	m ³ /s
Headwater Elevation		206.71	m
Crest Elevation		206.65	m
Tailwater Elevation		206.65	m
Crest Surface Type	Paved		
Crest Breadth		20.00	m
Crest Length		58.00	m

Cross Section Image



V: 1
H: 1

Worksheet for Block 41 Trapezoidal Ditch at Headwall - 100 YR SCS

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.04700	m/m
Left Side Slope	2.00	m/m (H:V)
Right Side Slope	2.00	m/m (H:V)
Bottom Width	3.00	m
Discharge	4.07	m ³ /s

Results

Normal Depth	0.38	m
Flow Area	1.45	m ²
Wetted Perimeter	4.72	m
Hydraulic Radius	0.31	m
Top Width	4.53	m
Critical Depth	0.51	m
Critical Slope	0.01727	m/m
Velocity	2.82	m/s
Velocity Head	0.40	m
Specific Energy	0.79	m
Froude Number	1.59	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.38	m
Critical Depth	0.51	m
Channel Slope	0.04700	m/m

Worksheet for Block 41 Trapezoidal Ditch at Headwall - 100 YR SCS

GVF Output Data

Critical Slope 0.01727 m/m

Cross Section for Block 41 Trapezoidal Ditch at Headwall - 100 YR SCS

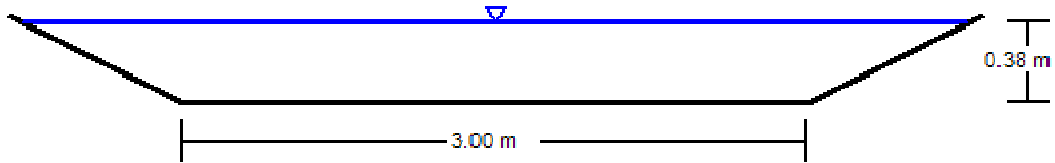
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.035
Channel Slope	0.04700 m/m
Normal Depth	0.38 m
Left Side Slope	2.00 m/m (H:V)
Right Side Slope	2.00 m/m (H:V)
Bottom Width	3.00 m
Discharge	4.07 m ³ /s

Cross Section Image



V: 1
H: 1

Worksheet for Block 41 Trapezoidal Ditch at Confluence - 100 YR SCS

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.04700	m/m
Left Side Slope	2.00	m/m (H:V)
Right Side Slope	2.00	m/m (H:V)
Bottom Width	2.20	m
Discharge	5.90	m ³ /s

Results

Normal Depth	0.55	m
Flow Area	1.79	m ²
Wetted Perimeter	4.64	m
Hydraulic Radius	0.39	m
Top Width	4.38	m
Critical Depth	0.72	m
Critical Slope	0.01633	m/m
Velocity	3.29	m/s
Velocity Head	0.55	m
Specific Energy	1.10	m
Froude Number	1.64	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.55	m
Critical Depth	0.72	m
Channel Slope	0.04700	m/m

Worksheet for Block 41 Trapezoidal Ditch at Confluence - 100 YR SCS

GVF Output Data

Critical Slope 0.01633 m/m

Cross Section for Block 41 Trapezoidal Ditch at Confluence - 100 YR

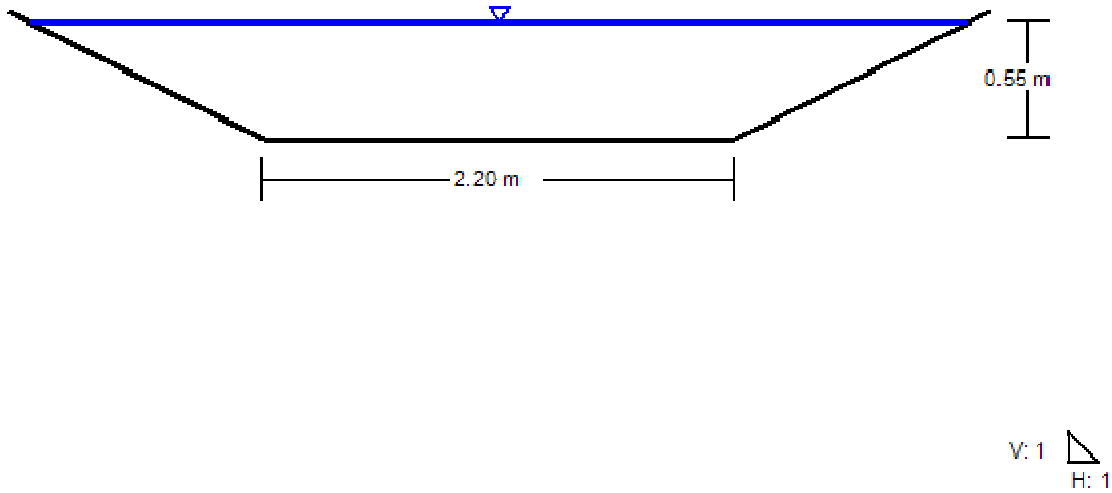
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.035
Channel Slope	0.04700 m/m
Normal Depth	0.55 m
Left Side Slope	2.00 m/m (H:V)
Right Side Slope	2.00 m/m (H:V)
Bottom Width	2.20 m
Discharge	5.90 m ³ /s

Cross Section Image



Worksheet for Ditch to Pond - 100 YR SCS Storm

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.035	
Channel Slope	0.00500	m/m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)
Discharge	5.90	m ³ /s

Results

Normal Depth	1.19	m
Flow Area	4.27	m ²
Wetted Perimeter	7.54	m
Hydraulic Radius	0.57	m
Top Width	7.16	m
Critical Depth	0.95	m
Critical Slope	0.01650	m/m
Velocity	1.38	m/s
Velocity Head	0.10	m
Specific Energy	1.29	m
Froude Number	0.57	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	1.19	m
Critical Depth	0.95	m
Channel Slope	0.00500	m/m
Critical Slope	0.01650	m/m

Cross Section for Ditch to Pond - 100 YR SCS Storm

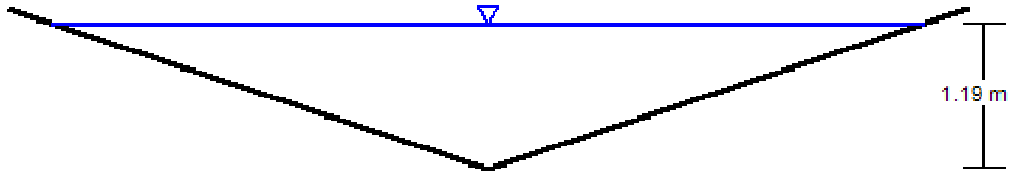
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.035
Channel Slope	0.00500 m/m
Normal Depth	1.19 m
Left Side Slope	3.00 m/m (H:V)
Right Side Slope	3.00 m/m (H:V)
Discharge	5.90 m ³ /s

Cross Section Image



V: 1
H: 1

825mm dia. Culverts - 100 YR SCS Storm Downstream Sag HWL

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.070	
Channel Slope	0.06400	m/m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)
Bottom Width	2.90	m
Discharge	8.99	m ³ /s

Results

Normal Depth	0.76	m
Flow Area	3.91	m ²
Wetted Perimeter	7.68	m
Hydraulic Radius	0.51	m
Top Width	7.43	m
Critical Depth	0.76	m
Critical Slope	0.06207	m/m
Velocity	2.30	m/s
Velocity Head	0.27	m
Specific Energy	1.03	m
Froude Number	1.01	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.76	m
Critical Depth	0.76	m
Channel Slope	0.06400	m/m

825mm dia. Culverts - 100 YR SCS Storm Downstream Sag HWL

GVF Output Data

Critical Slope 0.06207 m/m

825mm dia. Culverts - 100 YR SCS Storm Downstream Sag HWL

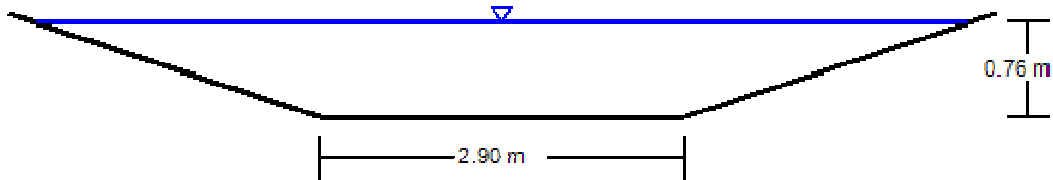
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.070
Channel Slope	0.06400 m/m
Normal Depth	0.76 m
Left Side Slope	3.00 m/m (H:V)
Right Side Slope	3.00 m/m (H:V)
Bottom Width	2.90 m
Discharge	8.99 m ³ /s

Cross Section Image



V: 1
H: 1

Culvert Calculator Report

Triple 825mm dia. Culvert Crossing Lot 13 Phase 3 (Updated)

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	199.75 m	Headwater Depth/Height	1.28
Computed Headwater Elevation	199.75 m	Discharge	3.6168 m ³ /s
Inlet Control HW Elev.	199.75 m	Tailwater Elevation	199.09 m
Outlet Control HW Elev.	199.75 m	Control Type	Outlet Control

Grades			
Upstream Invert	198.68 m	Downstream Invert	198.48 m
Length	10.00 m	Constructed Slope	0.020000 m/m

Hydraulic Profile			
Profile	M2	Depth, Downstream	0.66 m
Slope Type	Mild	Normal Depth	0.73 m
Flow Regime	Subcritical	Critical Depth	0.66 m
Velocity Downstream	2.58 m/s	Critical Slope	0.023825 m/m

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	0.84 m
Section Size	825 mm	Rise	0.84 m
Number Sections	3		

Outlet Control Properties			
Outlet Control HW Elev.	199.75 m	Upstream Velocity Head	0.29 m
Ke	0.20	Entrance Loss	0.06 m

Inlet Control Properties			
Inlet Control HW Elev.	199.75 m	Flow Control	N/A
Inlet Type	Beveled ring, 33.7° (1.5:1) bevels	Area Full	1.7 m ²
K	0.00180	HDS 5 Chart	3
M	2.50000	HDS 5 Scale	B
C	0.02430	Equation Form	1
Y	0.83000		

825mm dia. Culverts - 100 YR SCS Storm Downstream Culvert HWL

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.070	
Channel Slope	0.03200	m/m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)
Bottom Width	7.40	m
Discharge	8.99	m ³ /s

Results

Normal Depth	0.61	m
Flow Area	5.60	m ²
Wetted Perimeter	11.24	m
Hydraulic Radius	0.50	m
Top Width	11.04	m
Critical Depth	0.50	m
Critical Slope	0.06526	m/m
Velocity	1.61	m/s
Velocity Head	0.13	m
Specific Energy	0.74	m
Froude Number	0.72	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.61	m
Critical Depth	0.50	m
Channel Slope	0.03200	m/m

825mm dia. Culverts - 100 YR SCS Storm Downstream Culvert HWL

GVF Output Data

Critical Slope 0.06526 m/m

825mm dia. Culverts - 100 YR SCS Storm Downstream Culvert HWL

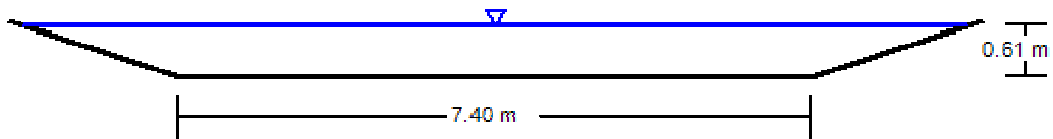
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Roughness Coefficient	0.070
Channel Slope	0.03200 m/m
Normal Depth	0.61 m
Left Side Slope	3.00 m/m (H:V)
Right Side Slope	3.00 m/m (H:V)
Bottom Width	7.40 m
Discharge	8.99 m ³ /s

Cross Section Image



V: 1
H: 1

825mm dia. Culverts - 100 YR SCS Storm Sag Overtop HWL (Updated)

Project Description

Solve For Headwater Elevation

Input Data

Discharge		2.32	m ³ /s
Crest Elevation		199.75	m
Tailwater Elevation		199.89	m
Crest Surface Type	Paved		
Crest Breadth		6.00	m
Crest Length		10.00	m

Results

Headwater Elevation	200.02	m
Headwater Height Above Crest	0.27	m
Tailwater Height Above Crest	0.14	m
Weir Coefficient	1.68	SI
Submergence Factor	1.00	
Adjusted Weir Coefficient	1.68	SI
Flow Area	2.68	m ²
Velocity	0.87	m/s
Wetted Perimeter	10.54	m
Top Width	10.00	m

825mm dia. Culverts - 100 YR SCS Storm Sag Overtop HWL (Updated)

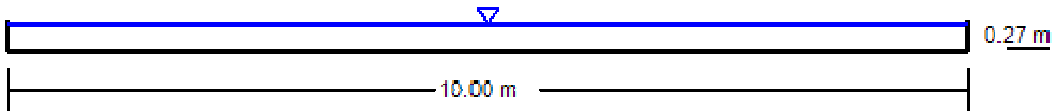
Project Description

Solve For Headwater Elevation

Input Data

Discharge		2.32	m ³ /s
Headwater Elevation		200.02	m
Crest Elevation		199.75	m
Tailwater Elevation		199.89	m
Crest Surface Type	Paved		
Crest Breadth		6.00	m
Crest Length		10.00	m

Cross Section Image



V: 1
H: 1



Project Name: Lora Bay Block 39
 Project No.: 183-5908
 Date: 2021-06-21
 By: Z. Holland
 Checked By: A. Spencer

D.A. NAME 202E
 D.A. AREA (ha) 1.44

**Hydrologic Parameters: CALIB STANDHYD Command
 Post Development Drainage Area: Catchment 202E**

Curve Number Calculation

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Brookston Clay Loam	Bc	D	100.0	1.4425
				0
				0
				0
Total Area Check				1.4425

Impervious Landuses Present:												Subtotals	
Soils	Roadway		Sidewalk		Driveway		Building		SWMF		Area	A*CN	
	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN			
Bc	0.46	98		98		98	0.44	98		98	0.90	88.54	
	0	98		98		98		98		98	0.00	0.00	
	0	98		98		98		98		98	0	0	
	0	98		98		98		98		98	0	0	
Subtotal Area	0.46		0.00		0		0.44		0		0.90		

Pervious Landuses Present:												Subtotals	
Soils	Woodland		Meadow		Wetland		Lawn		Cultivated		Area	A*CN	
	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN			
Bc	0		0		0		0.54	84	0		0.54	45.28	
	0		0		0		0		0		0	0	
	0		0		0		0		0		0	0	
	0		0		0		0		0		0	0	
Subtotal Area	0		0		0		0.54		0				

	Pervious Area Calculations	Total Pervious Area	0.54
		Composite Pervious Curve Number	84
	Impervious Area Calculations	Total Directly Connected Area	0.46
		Total Indirectly Connected Area	0.44
		Total Impervious Area	0.90
		% X imp	31.9
		% T imp	62.6
Total Area Check			1.44

Initial Abstraction and Tp Calculations

Landuse	IA (mm)	Area (ha)	A * IA
Woodland	10	0	0
Meadow	8	0	0
Wetland	16	0	0
Lawn	5	0.54	2.70
Cultivated	7	0	0

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	2	20	0.25
Impervious	2.0	0.5	98	0.013

2021.06.28_VO Summary - CHI

=====

V V I SSSS U U A L (v 6.1.2003)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
W I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
0 0 T T H H Y Y MM MM 0 0
0 0 T T H H Y M M 0 0
000 T T H H Y M M 000

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***** SUMMARY OUTPUT *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

Output filename:
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DATE: 06-28-2021 TIME: 10:57:11

USER:

COMMENTS: _____

** SIMULATION : TOBM-100yr **

W/E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase
min ha ' cms hrs mm cms

START @ 0.00 hrs

Block 39 (183-5908)

2021.06.28_VO Summary - CHI

READ STORM 5.0
[Ptot= 83.55 mm]
fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\757b5c4-040f-43b5-a806-3c
remark: TOBM-100yr

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** CALIB NASHYD 0101 1 5.0 43.80 3.66 1.83 39.34 0.47 0.000
[CN=77.5]
[N = 3.0:Tp 0.41]

* CHANNEL[2: 0101] 0606 1 5.0 43.80 3.63 1.92 39.34 n/a 0.000

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READ STORM 5.0
[Ptot= 83.55 mm]
fname :
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remark: TOBM-100yr

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[CN=68.5]
[N = 3.0:Tp 0.56]

* ADD [0104+ 0606] 0804 3 5.0 61.50 4.43 1.92 36.22 n/a 0.000

* CHANNEL[2: 0804] 0604 1 5.0 61.50 4.39 2.00 36.22 n/a 0.000

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[Ptot= 83.55 mm]
fname :
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remark: TOBM-100yr

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[CN=74.2]
[N = 3.0:Tp 0.53]

* CHANNEL[2: 0102] 0600 1 5.0 71.90 4.36 2.08 34.59 n/a 0.000

*
READ STORM 5.0
[Ptot= 83.55 mm]
fname :

Block 39 (183-5908)

2021.06.28_VO Summary - CHI

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remark: TOBM-100yr

*
** CALIB NASHYD 0103 1 5.0 18.00 0.68 2.33 27.47 0.33 0.000
[CN=67.1]
[N = 3.0:Tp 0.74]

* ADD [0103+ 0600] 0805 3 5.0 89.90 5.00 2.08 33.17 n/a 0.000

* ADD [0604+ 0805] 0806 3 5.0 151.40 9.31 2.08 34.40 n/a 0.000

* CHANNEL [2: 0806] 0601 1 5.0 151.40 9.33 2.08 34.40 n/a 0.000

* READ STORM 5.0
[Ptot= 83.55 mm]
fname :

C:\Users\zho1land\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-040f-43b5-a806-3c

remark: TOBM-100yr

*
** CALIB NASHYD 2014 1 5.0 4.08 0.11 2.00 15.28 0.18 0.000
[CN=45.3]
[N = 3.0:Tp 0.48]

* ADD [2014+ 0601] 8021 3 5.0 155.48 9.44 2.08 33.90 n/a 0.000

* READ STORM 5.0
[Ptot= 83.55 mm]
fname :

C:\Users\zho1land\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-040f-43b5-a806-3c

remark: TOBM-100yr

*
** CALIB NASHYD 2015 1 5.0 8.13 0.39 2.17 30.68 0.37 0.000
[CN=67.6]
[N = 3.0:Tp 0.62]

* READ STORM 5.0
[Ptot= 83.55 mm]
fname :

C:\Users\zho1land\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-040f-43b5-a806-3c

remark: TOBM-100yr

2021.06.28_VO Summary - CHI

*
* CALIB STANDHYD 2022 1 5.0 16.01 2.94 1.33 43.48 0.52 0.000
[I%=35.0:S%= 2.00]

* ADD [2015+ 2022] 0802 3 5.0 24.14 2.97 1.33 39.17 n/a 0.000

* ADD [0802+ 8021] 0802 1 5.0 179.62 10.43 2.00 34.61 n/a 0.000

* CHANNEL [2: 0802] 0602 1 5.0 179.62 10.42 2.08 34.61 n/a 0.000

* READ STORM 5.0
[Ptot= 83.55 mm]
fname :

C:\Users\zho1land\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-040f-43b5-a806-3c

remark: TOBM-100yr

*
* CALIB NASHYD 2016 1 5.0 9.08 0.59 2.25 46.05 0.55 0.000
[CN=81.8]
[N = 3.0:Tp 0.75]

* ADD [2016+ 0602] 0807 3 5.0 188.70 10.99 2.08 35.16 n/a 0.000

* CHANNEL [2: 0807] 0603 1 5.0 188.70 11.00 2.08 35.16 n/a 0.000

* READ STORM 5.0
[Ptot= 83.55 mm]
fname :

C:\Users\zho1land\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-040f-43b5-a806-3c

remark: TOBM-100yr

*
* CALIB NASHYD 2017 1 5.0 4.38 0.26 2.25 41.15 0.49 0.000
[CN=78.4]
[N = 3.0:Tp 0.72]

* ADD [2017+ 0603] 8031 3 5.0 193.08 11.25 2.08 35.30 n/a 0.000

* READ STORM 5.0
[Ptot= 83.55 mm]
fname :

C:\Users\zho1land\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-040f-43b5-a806-3c

remark: TOBM-100yr

*
* CALIB NASHYD 2018 1 5.0 4.38 0.26 2.25 41.15 0.49 0.000
[CN=78.4]
[N = 3.0:Tp 0.72]

* ADD [2018+ 0603] 8031 3 5.0 193.08 11.25 2.08 35.30 n/a 0.000

* READ STORM 5.0
[Ptot= 83.55 mm]
fname :

C:\Users\zho1land\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-040f-43b5-a806-3c

remark: TOBM-100yr

```

2021.06.28_VO Summary - CHI
* CALIB NASHYD      0106  1  5.0  74.80   4.83  2.08  37.78  0.45  0.000
  [CN=76.8          ]
  [ N = 3.0:Tp 0.56]
*
* SHIFT[  2: 0106]  0906  1  5.0  74.80   4.83  3.25  37.78  n/a  0.000
  [SHIFT= 72.7 min]
*
  READ STORM                5.0
  [ Ptot= 83.55 mm ]
  fname :
C:\Users\zho1land\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-
040f-43b5-a806-3c
  remark: TOBM-100yr
*
* CALIB NASHYD      0105  1  5.0   27.40   2.19  1.92  40.05  0.48  0.000
  [CN=79.1          ]
  [ N = 3.0:Tp 0.45]
*
* ADD [ 0105+ 0906]  0808  3  5.0  102.20   5.40  3.17  38.39  n/a  0.000
*
* PIPE [  2: 0808]  0702  1  5.0  102.20   5.40  3.17  38.39  n/a  0.000
*
  READ STORM                5.0
  [ Ptot= 83.55 mm ]
  fname :
C:\Users\zho1land\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-
040f-43b5-a806-3c
  remark: TOBM-100yr
*
* CALIB STANDHYD    2024  1  5.0   10.71   2.59  1.42  60.26  0.72  0.000
  [I%=35.0:S%= 2.00]
*
* ADD [ 2024+ 0702]  0809  3  5.0  112.91   5.55  3.17  40.46  n/a  0.000
*
* PIPE [  2: 0809]  0703  1  5.0  112.91   5.54  3.25  40.46  n/a  0.000
*
* PIPE [  2: 0703]  0704  1  5.0  112.91   5.53  3.25  40.46  n/a  0.000
*
  READ STORM                5.0
  [ Ptot= 83.55 mm ]
  fname :
C:\Users\zho1land\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-
040f-43b5-a806-3c
  remark: TOBM-100yr
*
Block 39 (183-5908)

```

```

2021.06.28_VO Summary - CHI
* CALIB NASHYD      2018  1  5.0   9.17   0.25  2.00  14.78  0.18  0.000
  [CN=43.9          ]
  [ N = 3.0:Tp 0.47]
*
* PIPE [  2: 2018]  0701  1  5.0   9.17   0.25  2.00  14.78  n/a  0.000
*
  READ STORM                5.0
  [ Ptot= 83.55 mm ]
  fname :
C:\Users\zho1land\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-
040f-43b5-a806-3c
  remark: TOBM-100yr
*
* CALIB NASHYD      2012  1  5.0   8.21   0.43  2.17  34.44  0.41  0.000
  [CN=72.5          ]
  [ N = 3.0:Tp 0.66]
*
  READ STORM                5.0
  [ Ptot= 83.55 mm ]
  fname :
C:\Users\zho1land\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-
040f-43b5-a806-3c
  remark: TOBM-100yr
*
* CALIB STANDHYD    2028  1  5.0   6.70   1.86  1.42  66.65  0.80  0.000
  [I%=35.0:S%= 2.00]
*
* ADD [ 2012+ 2028]  0814  3  5.0  14.91   1.93  1.42  48.91  n/a  0.000
*
  READ STORM                5.0
  [ Ptot= 83.55 mm ]
  fname :
C:\Users\zho1land\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-
040f-43b5-a806-3c
  remark: TOBM-100yr
*
* CALIB STANDHYD    2025  1  5.0   5.49   1.38  1.33  60.26  0.72  0.000
  [I%=35.0:S%= 2.00]
*
* ADD [ 2025+ 0814]  0801  3  5.0  20.40   3.26  1.42  51.97  n/a  0.000
*
  READ STORM                5.0
  [ Ptot= 83.55 mm ]
  fname :
C:\Users\zho1land\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-
040f-43b5-a806-3c
  remark: TOBM-100yr
*
Block 39 (183-5908)

```

2021.06.28_VO Summary - CHI

040f-43b5-a806-3c

remark: TOBM-100yr

*
 * CALIB NASHYD 20112 1 5.0 5.67 0.46 1.92 42.24 0.51 0.000
 [CN=79.0]
 [N = 3.0:Tp 0.48]

*
 READ STORM 5.0
 [Ptot= 83.55 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-040f-43b5-a806-3c

remark: TOBM-100yr

*
 * CALIB STANDHYD 2026 1 5.0 4.59 1.29 1.33 66.65 0.80 0.000
 [I%=35.0:S%= 2.00]

*
 READ STORM 5.0
 [Ptot= 83.55 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-040f-43b5-a806-3c

remark: TOBM-100yr

*
 * CALIB STANDHYD 2030 1 5.0 0.41 0.13 1.33 66.64 0.80 0.000
 [I%=35.0:S%= 2.00]

*
 ADD [20112+ 2026] 0811 3 5.0 10.26 1.41 1.42 53.16 n/a 0.000

*
 ADD [0811+ 2030] 0811 1 5.0 10.67 1.53 1.42 53.67 n/a 0.000

*
 CHANNEL[2: 0811] 0607 1 5.0 10.67 1.29 1.50 53.67 n/a 0.000

*
 READ STORM 5.0
 [Ptot= 83.55 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-040f-43b5-a806-3c

remark: TOBM-100yr

*
 * CALIB STANDHYD 2037 1 5.0 1.44 0.45 1.42 69.74 0.83 0.000
 [I%=31.9:S%= 2.00]

*
 READ STORM 5.0

Block 39 (183-5908)

2021.06.28_VO Summary - CHI

[Ptot= 83.55 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-040f-43b5-a806-3c

remark: TOBM-100yr

*
 * CALIB STANDHYD 2029 1 5.0 0.72 0.22 1.33 66.64 0.80 0.000
 [I%=35.0:S%= 2.00]

*
 ADD [2029+ 2037] 0812 3 5.0 2.16 0.66 1.33 68.71 n/a 0.000

*
 ADD [0812+ 0607] 0812 1 5.0 12.83 1.81 1.50 56.20 n/a 0.000

*
 CHANNEL[2: 0812] 0608 1 5.0 12.83 1.57 1.67 56.18 n/a 0.000

*
 READ STORM 5.0
 [Ptot= 83.55 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-040f-43b5-a806-3c

remark: TOBM-100yr

*
 ** CALIB NASHYD 2031 1 5.0 4.00 0.40 1.75 43.65 0.52 0.000
 [CN=80.8]
 [N = 3.0:Tp 0.37]

*
 ADD [2031+ 0608] 0813 3 5.0 16.83 1.95 1.67 53.20 n/a 0.000

*
 ADD [0813+ 0801] 0813 1 5.0 37.23 4.48 1.42 52.53 n/a 0.000

*
 CHANNEL[2: 0813] 0609 1 5.0 37.23 4.52 1.50 52.53 n/a 0.000

*
 READ STORM 5.0
 [Ptot= 83.55 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-040f-43b5-a806-3c

remark: TOBM-100yr

*
 * CALIB STANDHYD 2023 1 5.0 12.60 3.03 1.42 60.26 0.72 0.000
 [I%=35.0:S%= 2.00]

*
 ADD [2023+ 0609] 0815 3 5.0 49.83 7.34 1.42 54.48 n/a 0.000

*
 ADD [0815+ 0701] 0815 1 5.0 59.00 7.36 1.42 48.31 n/a 0.000

Block 39 (183-5908)

2021.06.28_VO Summary - CHI

```

*
  READ STORM                5.0
  [ Ptot= 83.55 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-
040f-43b5-a806-3c
  remark: TOBM-100yr

```

```

*
* CALIB NASHYD              0301 1 5.0   6.80   2.20  1.33  47.82 0.57  0.000
  [CN=91.7 ]
  [ N = 3.0:Tp 0.05]

```

```

*
  ADD [ 0301+ 0704] 0803 3 5.0  119.71   5.60  3.25  40.88 n/a  0.000

```

```

*
  ADD [ 0803+ 8031] 0803 1 5.0  312.79  14.19  2.00  37.43 n/a  0.000

```

```

*
  ADD [ 0803+ 0815] 0803 3 5.0  371.79  17.99  1.92  39.16 n/a  0.000

```

```

** Reservoir
  OUTFLOW:                 0501 1 5.0  371.79  14.73  2.33  39.12 n/a  0.000

```

```

*
  READ STORM                5.0
  [ Ptot= 83.55 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-
040f-43b5-a806-3c
  remark: TOBM-100yr

```

```

*
* CALIB NASHYD              2032 1 5.0   1.65   0.23  1.50  37.09 0.44  0.000
  [CN=76.2 ]
  [ N = 3.0:Tp 0.15]

```

```

*
  CHANNEL[ 2: 2032] 0605 1 5.0   1.65   0.16  1.67  36.89 n/a  0.000

```

```

*
  READ STORM                5.0
  [ Ptot= 83.55 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-
040f-43b5-a806-3c
  remark: TOBM-100yr

```

```

*
* CALIB NASHYD              2035 1 5.0   0.38   0.04  1.75  38.85 0.46  0.000
  [CN=76.0 ]
  [ N = 3.0:Tp 0.32]

```

2021.06.28_VO Summary - CHI

```

  READ STORM                5.0
  [ Ptot= 83.55 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-
040f-43b5-a806-3c
  remark: TOBM-100yr

```

```

*
* CALIB NASHYD              2036 1 5.0   0.42   0.07  1.42  37.39 0.45  0.000
  [CN=76.0 ]
  [ N = 3.0:Tp 0.09]

```

```

*
  READ STORM                5.0
  [ Ptot= 83.55 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-
040f-43b5-a806-3c
  remark: TOBM-100yr

```

```

*
* CALIB STANDHYD           2034 1 5.0   2.49   0.75  1.33  63.72 0.76  0.000
  [I%=43.0:S%= 2.00]

```

```

*
  READ STORM                5.0
  [ Ptot= 83.55 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\f757b5c4-
040f-43b5-a806-3c
  remark: TOBM-100yr

```

```

*
* CALIB STANDHYD           2033 1 5.0   3.26   0.93  1.33  62.76 0.75  0.000
  [I%=40.3:S%= 2.00]

```

```

*
  ADD [ 2033+ 2034] 0810 3 5.0   5.75   1.68  1.33  63.18 n/a  0.000

```

```

*
  ADD [ 0810+ 2035] 0810 1 5.0   6.13   1.69  1.33  61.67 n/a  0.000

```

```

*
  ADD [ 0810+ 2036] 0810 3 5.0   6.55   1.75  1.33  60.11 n/a  0.000

```

```

*
  ADD [ 0810+ 0501] 0810 1 5.0  378.34  14.93  2.33  39.48 n/a  0.000

```

```

*
  ADD [ 0810+ 0605] 0810 3 5.0  379.99  14.99  2.33  39.47 n/a  0.000

```

FINISH

```

=====
=====

```

2021.06.28_VO Summary - CHI

=====

```
V  V  I  SSSSS  U  U  A  L          (v 6.1.2003)
V  V  I  SS    U  U  A  A  L
V  V  I  SS    U  U  A  A  A  L
V  V  I  SS    U  U  A  A  L
VV   I  SSSSS  UUUUU  A  A  LLLLL
```

```
000  TTTT  TTTT  H  H  Y  Y  M  M  000  TM
O  O  T  T  H  H  Y  Y  MM  MM  O  O
O  O  T  T  H  H  Y  M  M  O  O
000  T  T  H  H  Y  M  M  000
```

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***** S U M M A R Y O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

Output filename:
 C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\dad
 cd771-7892-4e60-996f-a3793b00b2fc\sce
 Summary filename:
 C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\dad
 cd771-7892-4e60-996f-a3793b00b2fc\sce

DATE: 06-28-2021 TIME: 10:57:10

USER:

COMMENTS: _____

```
*****
** SIMULATION : TOBM-25yr **
*****
```

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
		min	ha	cms	hrs	mm		cms

2021.06.28_VO Summary - CHI
 START @ 0.00 hrs

```
-----
READ STORM 5.0
[ Ptot= 69.09 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-
f862-40f3-877a-c4
remark: TOBM-25yr
```

```
*
** CALIB NASHYD 0101 1 5.0 43.80 2.60 1.83 28.71 0.42 0.000
[CN=77.5 ]
[ N = 3.0:Tp 0.41]
```

```
*
CHANNEL[ 2: 0101] 0606 1 5.0 43.80 2.58 1.92 28.71 n/a 0.000
```

```
*
READ STORM 5.0
[ Ptot= 69.09 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-
f862-40f3-877a-c4
remark: TOBM-25yr
```

```
*
** CALIB NASHYD 0104 1 5.0 17.70 0.57 2.08 19.92 0.29 0.000
[CN=68.5 ]
[ N = 3.0:Tp 0.56]
```

```
*
ADD [ 0104+ 0606] 0804 3 5.0 61.50 3.12 1.92 26.18 n/a 0.000
```

```
*
CHANNEL[ 2: 0804] 0604 1 5.0 61.50 3.11 2.00 26.18 n/a 0.000
```

```
*
READ STORM 5.0
[ Ptot= 69.09 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-
f862-40f3-877a-c4
remark: TOBM-25yr
```

```
*
** CALIB NASHYD 0102 1 5.0 71.90 3.05 2.00 24.76 0.36 0.000
[CN=74.2 ]
[ N = 3.0:Tp 0.53]
```

```
*
CHANNEL[ 2: 0102] 0600 1 5.0 71.90 3.04 2.08 24.76 n/a 0.000
```

```
*
READ STORM 5.0
[ Ptot= 69.09 mm ]
```

2021.06.28_VO Summary - CHI

fname :
 C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4
 remark: TOBM-25yr

```
*
** CALIB NASHYD      0103  1  5.0  18.00  0.46  2.33  19.16  0.28  0.000
   [CN=67.1          ]
   [ N = 3.0:Tp 0.74]
*
  ADD [ 0103+ 0600] 0805  3  5.0  89.90  3.47  2.08  23.64  n/a  0.000
*
  ADD [ 0604+ 0805] 0806  3  5.0  151.40  6.54  2.08  24.67  n/a  0.000
*
  CHANNEL[ 2: 0806] 0601  1  5.0  151.40  6.55  2.08  24.67  n/a  0.000
*
  READ STORM                5.0
  [ Ptot= 69.09 mm ]
  fname :
```

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4
 remark: TOBM-25yr

```
*
** CALIB NASHYD      2014  1  5.0   4.08  0.07  2.00  10.44  0.15  0.000
   [CN=45.3          ]
   [ N = 3.0:Tp 0.48]
*
  ADD [ 2014+ 0601] 8021  3  5.0  155.48  6.62  2.08  24.30  n/a  0.000
*
  READ STORM                5.0
  [ Ptot= 69.09 mm ]
  fname :
```

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4
 remark: TOBM-25yr

```
*
** CALIB NASHYD      2015  1  5.0   8.13  0.28  2.17  21.99  0.32  0.000
   [CN=67.6          ]
   [ N = 3.0:Tp 0.62]
*
  READ STORM                5.0
  [ Ptot= 69.09 mm ]
  fname :
```

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4
 remark: TOBM-25yr

2021.06.28_VO Summary - CHI

```
*
* CALIB STANDHYD      2022  1  5.0  16.01  2.32  1.33  34.13  0.49  0.000
   [I%=35.0:S%= 2.00]
*
  ADD [ 2015+ 2022] 0802  3  5.0  24.14  2.33  1.33  30.04  n/a  0.000
*
  ADD [ 0802+ 8021] 0802  1  5.0  179.62  7.36  2.08  25.07  n/a  0.000
*
  CHANNEL[ 2: 0802] 0602  1  5.0  179.62  7.37  2.08  25.07  n/a  0.000
```

```
*
  READ STORM                5.0
  [ Ptot= 69.09 mm ]
  fname :
```

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4
 remark: TOBM-25yr

```
*
* CALIB NASHYD      2016  1  5.0   9.08  0.44  2.25  34.41  0.50  0.000
   [CN=81.8          ]
   [ N = 3.0:Tp 0.75]
*
  ADD [ 2016+ 0602] 0807  3  5.0  188.70  7.79  2.08  25.52  n/a  0.000
*
  CHANNEL[ 2: 0807] 0603  1  5.0  188.70  7.78  2.08  25.52  n/a  0.000
```

```
*
  READ STORM                5.0
  [ Ptot= 69.09 mm ]
  fname :
```

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4
 remark: TOBM-25yr

```
*
* CALIB NASHYD      2017  1  5.0   4.38  0.19  2.25  30.27  0.44  0.000
   [CN=78.4          ]
   [ N = 3.0:Tp 0.72]
*
  ADD [ 2017+ 0603] 8031  3  5.0  193.08  7.96  2.08  25.63  n/a  0.000
```

```
*
  READ STORM                5.0
  [ Ptot= 69.09 mm ]
  fname :
```

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4
 remark: TOBM-25yr

2021.06.28_VO Summary - CHI

```

*
* CALIB NASHYD      0106  1  5.0  74.80   3.42  2.08  27.35  0.40  0.000
  [CN=76.8          ]
  [ N = 3.0:Tp 0.56]
*
* SHIFT[  2: 0106]  0906  1  5.0  74.80   3.42  3.25  27.35  n/a  0.000
  [SHIFT= 72.7 min]
*
* READ STORM                5.0
  [ Ptot= 69.09 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-
f862-40f3-877a-c4
  remark: TOBM-25yr
*
* CALIB NASHYD      0105  1  5.0  27.40   1.55  1.92  29.15  0.42  0.000
  [CN=79.1          ]
  [ N = 3.0:Tp 0.45]
*
* ADD [ 0105+ 0906]  0808  3  5.0  102.20   3.84  3.17  27.83  n/a  0.000
*
* PIPE [ 2: 0808]    0702  1  5.0  102.20   3.84  3.25  27.83  n/a  0.000
*
* READ STORM                5.0
  [ Ptot= 69.09 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-
f862-40f3-877a-c4
  remark: TOBM-25yr
*
* CALIB STANDHYD    2024  1  5.0  10.71   1.84  1.33  47.44  0.69  0.000
  [I%=35.0:S%= 2.00]
*
* ADD [ 2024+ 0702]  0809  3  5.0  112.91   3.97  3.17  29.69  n/a  0.000
*
* PIPE [ 2: 0809]    0703  1  5.0  112.91   3.97  3.25  29.69  n/a  0.000
*
* PIPE [ 2: 0703]    0704  1  5.0  112.91   3.95  3.25  29.69  n/a  0.000
*
* READ STORM                5.0
  [ Ptot= 69.09 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-
f862-40f3-877a-c4
  remark: TOBM-25yr

```

2021.06.28_VO Summary - CHI

```

*
* CALIB NASHYD      2018  1  5.0   9.17   0.16  2.00  10.12  0.15  0.000
  [CN=43.9          ]
  [ N = 3.0:Tp 0.47]
*
* PIPE [ 2: 2018]    0701  1  5.0   9.17   0.16  2.00  10.12  n/a  0.000
*
* READ STORM                5.0
  [ Ptot= 69.09 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-
f862-40f3-877a-c4
  remark: TOBM-25yr
*
* CALIB NASHYD      2012  1  5.0   8.21   0.30  2.17  24.84  0.36  0.000
  [CN=72.5          ]
  [ N = 3.0:Tp 0.66]
*
* READ STORM                5.0
  [ Ptot= 69.09 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-
f862-40f3-877a-c4
  remark: TOBM-25yr
*
* CALIB STANDHYD    2028  1  5.0   6.70   1.44  1.42  53.12  0.77  0.000
  [I%=35.0:S%= 2.00]
*
* ADD [ 2012+ 2028]  0814  3  5.0  14.91   1.49  1.42  37.55  n/a  0.000
*
* READ STORM                5.0
  [ Ptot= 69.09 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-
f862-40f3-877a-c4
  remark: TOBM-25yr
*
* CALIB STANDHYD    2025  1  5.0   5.49   0.99  1.33  47.44  0.69  0.000
  [I%=35.0:S%= 2.00]
*
* ADD [ 2025+ 0814]  0801  3  5.0  20.40   2.45  1.33  40.21  n/a  0.000
*
* READ STORM                5.0
  [ Ptot= 69.09 mm ]
  fname :

```

2021.06.28_VO Summary - CHI

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4

remark: TOBM-25yr

```

*
* CALIB NASHYD      20112  1  5.0    5.67    0.33  1.92  31.21  0.45  0.000
  [CN=79.0          ]
  [ N = 3.0:Tp 0.48]

```

```

*
* READ STORM      5.0
  [ Ptot= 69.09 mm ]
  fname :

```

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4

remark: TOBM-25yr

```

*
* CALIB STANDHYD   2026  1  5.0    4.59    1.01  1.33  53.12  0.77  0.000
  [I%=35.0:S%= 2.00]

```

```

*
* READ STORM      5.0
  [ Ptot= 69.09 mm ]
  fname :

```

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4

remark: TOBM-25yr

```

*
* CALIB STANDHYD   2030  1  5.0    0.41    0.10  1.33  53.11  0.77  0.000
  [I%=35.0:S%= 2.00]

```

```

*
* ADD [ 20112+ 2026] 0811  3  5.0    10.26    1.08  1.42  41.01  n/a  0.000

```

```

*
* ADD [ 0811+ 2030] 0811  1  5.0    10.67    1.17  1.42  41.48  n/a  0.000

```

```

*
* CHANNEL[ 2: 0811] 0607  1  5.0    10.67    1.13  1.58  41.47  n/a  0.000

```

```

*
* READ STORM      5.0
  [ Ptot= 69.09 mm ]
  fname :

```

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4

remark: TOBM-25yr

```

*
* CALIB STANDHYD   2037  1  5.0    1.44    0.35  1.33  55.89  0.81  0.000
  [I%=31.9:S%= 2.00]

```

2021.06.28_VO Summary - CHI

READ STORM 5.0

[Ptot= 69.09 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4

remark: TOBM-25yr

```

*
* CALIB STANDHYD   2029  1  5.0    0.72    0.17  1.33  53.12  0.77  0.000
  [I%=35.0:S%= 2.00]

```

```

*
* ADD [ 2029+ 2037] 0812  3  5.0    2.16    0.52  1.33  54.96  n/a  0.000

```

```

*
* ADD [ 0812+ 0607] 0812  1  5.0    12.83    1.45  1.58  43.74  n/a  0.000

```

```

*
* CHANNEL[ 2: 0812] 0608  1  5.0    12.83    1.31  1.83  43.72  n/a  0.000

```

```

*
* READ STORM      5.0
  [ Ptot= 69.09 mm ]
  fname :

```

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4

remark: TOBM-25yr

```

**
** CALIB NASHYD      2031  1  5.0    4.00    0.29  1.83  32.28  0.47  0.000
  [CN=80.8          ]
  [ N = 3.0:Tp 0.37]

```

```

*
* ADD [ 2031+ 0608] 0813  3  5.0    16.83    1.60  1.83  41.00  n/a  0.000

```

```

*
* ADD [ 0813+ 0801] 0813  1  5.0    37.23    3.28  1.50  40.57  n/a  0.000

```

```

*
* CHANNEL[ 2: 0813] 0609  1  5.0    37.23    3.32  1.50  40.57  n/a  0.000

```

```

*
* READ STORM      5.0
  [ Ptot= 69.09 mm ]
  fname :

```

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4

remark: TOBM-25yr

```

*
* CALIB STANDHYD   2023  1  5.0    12.60    2.13  1.33  47.44  0.69  0.000
  [I%=35.0:S%= 2.00]

```

```

*
* ADD [ 2023+ 0609] 0815  3  5.0    49.83    5.18  1.50  42.31  n/a  0.000

```

2021.06.28_VO Summary - CHI

ADD [0815+ 0701] 0815 1 5.0 59.00 5.22 1.50 37.30 n/a 0.000

* READ STORM 5.0
[Ptot= 69.09 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4
remark: TOBM-25yr

* CALIB NASHYD 0301 1 5.0 6.80 1.71 1.33 37.42 0.54 0.000
[CN=91.7]
[N = 3.0:Tp 0.05]

* ADD [0301+ 0704] 0803 3 5.0 119.71 4.01 3.25 30.13 n/a 0.000

* ADD [0803+ 8031] 0803 1 5.0 312.79 10.15 2.08 27.35 n/a 0.000

* ADD [0803+ 0815] 0803 3 5.0 371.79 13.26 1.92 28.93 n/a 0.000

** Reservoir
OUTFLOW: 0501 1 5.0 371.79 8.77 3.00 28.89 n/a 0.000

* READ STORM 5.0
[Ptot= 69.09 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4
remark: TOBM-25yr

* CALIB NASHYD 2032 1 5.0 1.65 0.16 1.50 26.84 0.39 0.000
[CN=76.2]
[N = 3.0:Tp 0.15]

* CHANNEL[2: 2032] 0605 1 5.0 1.65 0.10 1.75 26.65 n/a 0.000

* READ STORM 5.0
[Ptot= 69.09 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4
remark: TOBM-25yr

* CALIB NASHYD 2035 1 5.0 0.38 0.03 1.75 28.45 0.41 0.000
[CN=76.0]
[N = 3.0:Tp 0.32]

2021.06.28_VO Summary - CHI

* READ STORM 5.0
[Ptot= 69.09 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4
remark: TOBM-25yr

* CALIB NASHYD 2036 1 5.0 0.42 0.05 1.42 27.39 0.40 0.000
[CN=76.0]
[N = 3.0:Tp 0.09]

* READ STORM 5.0
[Ptot= 69.09 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4
remark: TOBM-25yr

* CALIB STANDHYD 2034 1 5.0 2.49 0.60 1.33 50.61 0.73 0.000
[I%=43.0:S%= 2.00]

* READ STORM 5.0
[Ptot= 69.09 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\42dc7a70-f862-40f3-877a-c4
remark: TOBM-25yr

* CALIB STANDHYD 2033 1 5.0 3.26 0.73 1.33 49.72 0.72 0.000
[I%=40.3:S%= 2.00]

* ADD [2033+ 2034] 0810 3 5.0 5.75 1.33 1.33 50.10 n/a 0.000

* ADD [0810+ 2035] 0810 1 5.0 6.13 1.34 1.33 48.76 n/a 0.000

* ADD [0810+ 2036] 0810 3 5.0 6.55 1.38 1.33 47.39 n/a 0.000

* ADD [0810+ 0501] 0810 1 5.0 378.34 8.85 2.92 29.21 n/a 0.000

* ADD [0810+ 0605] 0810 3 5.0 379.99 8.88 2.92 29.20 n/a 0.000

=====
=====

2021.06.28_VO Summary - CHI

```
V V I SSSS U U A L (v 6.1.2003)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
W I SSSS UUUU A A LLLLL
```

```
000 TTTT TTTT H H Y Y M M 000 TM
0 0 T T H H Y Y MM MM 0 0
0 0 T T H H Y M M 0 0
000 T T H H Y M M 000
```

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***** S U M M A R Y O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYM0 6.1\VO2\voin.dat

Output filename:
 C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\acd
 d51a6-24e8-47f9-8b28-316036924232\sce
 Summary filename:
 C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\acd
 d51a6-24e8-47f9-8b28-316036924232\sce

DATE: 06-28-2021 TIME: 10:57:09

USER:

COMMENTS: _____

```
*****
** SIMULATION : TOBM-2yr **
*****
```

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
		min	ha	cms	hrs	mm		cms
START @ 0.00 hrs								

READ STORM		5.0						
[Ptot= 39.93 mm]								

Block 39 (183-5908)

2021.06.28_VO Summary - CHI

fname :
 C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
 0a6f-40ae-87a7-70
 remark: TOBM-2yr

```
*
** CALIB NASHYD 0101 1 5.0 43.80 0.84 1.92 10.41 0.26 0.000
[CN=77.5 ]
[ N = 3.0:Tp 0.41]
```

```
* CHANNEL[ 2: 0101] 0606 1 5.0 43.80 0.83 2.00 10.41 n/a 0.000
```

```
* READ STORM 5.0
[ Ptot= 39.93 mm ]
fname :
```

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
 0a6f-40ae-87a7-70
 remark: TOBM-2yr

```
*
** CALIB NASHYD 0104 1 5.0 17.70 0.15 2.17 6.15 0.15 0.000
[CN=68.5 ]
[ N = 3.0:Tp 0.56]
```

```
* ADD [ 0104+ 0606] 0804 3 5.0 61.50 0.98 2.00 9.18 n/a 0.000
```

```
* CHANNEL[ 2: 0804] 0604 1 5.0 61.50 0.96 2.08 9.18 n/a 0.000
```

```
* READ STORM 5.0
[ Ptot= 39.93 mm ]
fname :
```

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
 0a6f-40ae-87a7-70
 remark: TOBM-2yr

```
*
** CALIB NASHYD 0102 1 5.0 71.90 0.91 2.08 8.34 0.21 0.000
[CN=74.2 ]
[ N = 3.0:Tp 0.53]
```

```
* CHANNEL[ 2: 0102] 0600 1 5.0 71.90 0.90 2.17 8.34 n/a 0.000
```

```
* READ STORM 5.0
[ Ptot= 39.93 mm ]
fname :
```

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
 0a6f-40ae-87a7-70
 remark: TOBM-2yr

Block 39 (183-5908)

2021.06.28_VO Summary - CHI

```

*
** CALIB NASHYD      0103  1  5.0  18.00  0.13  2.42  5.89  0.15  0.000
   [CN=67.1          ]
   [ N = 3.0:Tp 0.74]
*
ADD [ 0103+ 0600] 0805  3  5.0  89.90  1.02  2.25  7.85  n/a  0.000
*
ADD [ 0604+ 0805] 0806  3  5.0  151.40  1.97  2.17  8.39  n/a  0.000
*
CHANNEL [ 2: 0806] 0601  1  5.0  151.40  1.97  2.17  8.39  n/a  0.000
*
READ STORM          5.0
[ Ptot= 39.93 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
remark: TOBM-2yr
*
** CALIB NASHYD      2014  1  5.0   4.08  0.02  2.00  3.19  0.08  0.000
   [CN=45.3          ]
   [ N = 3.0:Tp 0.48]
*
ADD [ 2014+ 0601] 8021  3  5.0  155.48  1.99  2.17  8.25  n/a  0.000
*
READ STORM          5.0
[ Ptot= 39.93 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
remark: TOBM-2yr
*
** CALIB NASHYD      2015  1  5.0   8.13  0.09  2.17  7.71  0.19  0.000
   [CN=67.6          ]
   [ N = 3.0:Tp 0.62]
*
READ STORM          5.0
[ Ptot= 39.93 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
remark: TOBM-2yr
*
** CALIB STANDHYD   2022  1  5.0  16.01  1.25  1.33  17.16  0.43  0.000
   [I%=35.0:S%= 2.00]

```

2021.06.28_VO Summary - CHI

```

*
ADD [ 2015+ 2022] 0802  3  5.0  24.14  1.26  1.33  13.98  n/a  0.000
*
ADD [ 0802+ 8021] 0802  1  5.0  179.62  2.27  2.17  9.02  n/a  0.000
*
CHANNEL [ 2: 0802] 0602  1  5.0  179.62  2.27  2.17  9.02  n/a  0.000
*
READ STORM          5.0
[ Ptot= 39.93 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
remark: TOBM-2yr
*
** CALIB NASHYD      2016  1  5.0   9.08  0.16  2.33  13.62  0.34  0.000
   [CN=81.8          ]
   [ N = 3.0:Tp 0.75]
*
ADD [ 2016+ 0602] 0807  3  5.0  188.70  2.43  2.17  9.24  n/a  0.000
*
CHANNEL [ 2: 0807] 0603  1  5.0  188.70  2.42  2.25  9.24  n/a  0.000
*
READ STORM          5.0
[ Ptot= 39.93 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
remark: TOBM-2yr
*
** CALIB NASHYD      2017  1  5.0   4.38  0.07  2.33  11.35  0.28  0.000
   [CN=78.4          ]
   [ N = 3.0:Tp 0.72]
*
ADD [ 2017+ 0603] 8031  3  5.0  193.08  2.48  2.25  9.29  n/a  0.000
*
READ STORM          5.0
[ Ptot= 39.93 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
remark: TOBM-2yr
*
** CALIB NASHYD      0106  1  5.0  74.80  1.07  2.17  9.58  0.24  0.000
   [CN=76.8          ]
   [ N = 3.0:Tp 0.56]

```

2021.06.28_VO Summary - CHI

```

*
*   SHIFT[  2: 0106] 0906 1 5.0  74.80  1.07 3.33  9.58 n/a  0.000
*   [SHIFT= 72.7 min]
*
*   READ STORM
*   [ Ptot= 39.93 mm ]
*   fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
*   remark: TOBM-2yr
*
**  CALIB NASHYD      0105 1 5.0  27.40  0.48 2.00 10.32 0.26  0.000
*   [CN=79.1          ]
*   [ N = 3.0:Tp 0.45]
*
*   ADD [ 0105+ 0906] 0808 3 5.0 102.20  1.25 3.25  9.78 n/a  0.000
*
*   PIPE [ 2: 0808] 0702 1 5.0 102.20  1.24 3.25  9.78 n/a  0.000
*
*   READ STORM
*   [ Ptot= 39.93 mm ]
*   fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
*   remark: TOBM-2yr
*
*   CALIB STANDHYD   2024 1 5.0  10.71  0.92 1.33 23.24 0.58  0.000
*   [I%=35.0:S%= 2.00]
*
*   ADD [ 2024+ 0702] 0809 3 5.0 112.91  1.32 3.25 11.06 n/a  0.000
*
*   PIPE [ 2: 0809] 0703 1 5.0 112.91  1.32 3.33 11.06 n/a  0.000
*
*   PIPE [ 2: 0703] 0704 1 5.0 112.91  1.32 3.33 11.06 n/a  0.000
*
*   READ STORM
*   [ Ptot= 39.93 mm ]
*   fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
*   remark: TOBM-2yr
*
*   CALIB NASHYD      2018 1 5.0  9.17  0.05 2.00  3.12 0.08  0.000
*   [CN=43.9          ]
*   [ N = 3.0:Tp 0.47]

```

2021.06.28_VO Summary - CHI

```

*
*   PIPE [ 2: 2018] 0701 1 5.0  9.17  0.05 2.08  3.12 n/a  0.000
*
*   READ STORM
*   [ Ptot= 39.93 mm ]
*   fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
*   remark: TOBM-2yr
*
*   CALIB NASHYD      2012 1 5.0  8.21  0.10 2.25  8.75 0.22  0.000
*   [CN=72.5          ]
*   [ N = 3.0:Tp 0.66]
*
*   READ STORM
*   [ Ptot= 39.93 mm ]
*   fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
*   remark: TOBM-2yr
*
*   CALIB STANDHYD   2028 1 5.0  6.70  0.67 1.33 26.96 0.68  0.000
*   [I%=35.0:S%= 2.00]
*
*   ADD [ 2012+ 2028] 0814 3 5.0 14.91  0.67 1.33 16.93 n/a  0.000
*
*   READ STORM
*   [ Ptot= 39.93 mm ]
*   fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
*   remark: TOBM-2yr
*
*   CALIB STANDHYD   2025 1 5.0  5.49  0.51 1.33 23.24 0.58  0.000
*   [I%=35.0:S%= 2.00]
*
*   ADD [ 2025+ 0814] 0801 3 5.0 20.40  1.19 1.33 18.63 n/a  0.000
*
*   READ STORM
*   [ Ptot= 39.93 mm ]
*   fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
*   remark: TOBM-2yr

```

2021.06.28_VO Summary - CHI

```

*
* CALIB NASHYD      20112  1  5.0   5.67   0.12  2.00  11.91  0.30   0.000
  [CN=79.0          ]
  [ N = 3.0:Tp 0.48]
*
  READ STORM                5.0
  [ Ptot= 39.93 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
  remark: TOBM-2yr
*
* CALIB STANDHYD   2026  1  5.0   4.59   0.47  1.33  26.96  0.68   0.000
  [I%=35.0:S%= 2.00]
*
  READ STORM                5.0
  [ Ptot= 39.93 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
  remark: TOBM-2yr
*
* CALIB STANDHYD   2030  1  5.0   0.41   0.05  1.33  26.95  0.67   0.000
  [I%=35.0:S%= 2.00]
*
  ADD [ 20112+ 2026] 0811  3  5.0  10.26   0.48  1.33  18.64  n/a   0.000
*
  ADD [ 0811+ 2030] 0811  1  5.0  10.67   0.53  1.33  18.96  n/a   0.000
*
  CHANNEL[ 2: 0811] 0607  1  5.0  10.67   0.44  1.50  18.96  n/a   0.000
*
  READ STORM                5.0
  [ Ptot= 39.93 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
  remark: TOBM-2yr
*
* CALIB STANDHYD   2037  1  5.0   1.44   0.18  1.33  28.76  0.72   0.000
  [I%=31.9:S%= 2.00]
*
  READ STORM                5.0
  [ Ptot= 39.93 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
Block 39 (183-5908)
  
```

2021.06.28_VO Summary - CHI

```

0a6f-40ae-87a7-70
  remark: TOBM-2yr
*
* CALIB STANDHYD   2029  1  5.0   0.72   0.08  1.33  26.96  0.68   0.000
  [I%=35.0:S%= 2.00]
*
  ADD [ 2029+ 2037] 0812  3  5.0   2.16   0.26  1.33  28.16  n/a   0.000
*
  ADD [ 0812+ 0607] 0812  1  5.0  12.83   0.64  1.42  20.50  n/a   0.000
*
  CHANNEL[ 2: 0812] 0608  1  5.0  12.83   0.58  1.58  20.49  n/a   0.000
*
  READ STORM                5.0
  [ Ptot= 39.93 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
  remark: TOBM-2yr
*
* CALIB NASHYD      2031  1  5.0   4.00   0.10  1.83  12.24  0.31   0.000
  [CN=80.8          ]
  [ N = 3.0:Tp 0.37]
*
  ADD [ 2031+ 0608] 0813  3  5.0  16.83   0.65  1.58  18.53  n/a   0.000
*
  ADD [ 0813+ 0801] 0813  1  5.0  37.23   1.49  1.50  18.58  n/a   0.000
*
  CHANNEL[ 2: 0813] 0609  1  5.0  37.23   1.49  1.50  18.58  n/a   0.000
*
  READ STORM                5.0
  [ Ptot= 39.93 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-
0a6f-40ae-87a7-70
  remark: TOBM-2yr
*
* CALIB STANDHYD   2023  1  5.0  12.60   1.06  1.33  23.24  0.58   0.000
  [I%=35.0:S%= 2.00]
*
  ADD [ 2023+ 0609] 0815  3  5.0  49.83   2.28  1.42  19.76  n/a   0.000
*
  ADD [ 0815+ 0701] 0815  1  5.0  59.00   2.29  1.42  17.17  n/a   0.000
*
  READ STORM                5.0
  [ Ptot= 39.93 mm ]
Block 39 (183-5908)
  
```

2021.06.28_VO Summary - CHI

fname :
 C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-0a6f-40ae-87a7-70
 remark: TOBM-2yr

```
*
* CALIB NASHYD      0301  1  5.0   6.80   0.77  1.33  17.37  0.44   0.000
  [CN=91.7          ]
  [ N = 3.0:Tp 0.05]
*
* ADD [ 0301+ 0704] 0803  3  5.0  119.71   1.35  3.33  11.41  n/a   0.000
*
* ADD [ 0803+ 8031] 0803  1  5.0   312.79   3.26  2.17  10.10  n/a   0.000
*
* ADD [ 0803+ 0815] 0803  3  5.0   371.79   4.64  1.42  11.22  n/a   0.000
*
** Reservoir
OUTFLOW:           0501  1  5.0   371.79   1.99  4.08  11.19  n/a   0.000
```

```
  READ STORM                5.0
  [ Ptot= 39.93 mm ]
  fname :
  C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-0a6f-40ae-87a7-70
  remark: TOBM-2yr
```

```
*
* CALIB NASHYD      2032  1  5.0   1.65   0.05  1.50   9.41  0.24   0.000
  [CN=76.2          ]
  [ N = 3.0:Tp 0.15]
*
* CHANNEL[ 2: 2032] 0605  1  5.0   1.65   0.03  1.83   9.22  n/a   0.000
```

```
  READ STORM                5.0
  [ Ptot= 39.93 mm ]
  fname :
  C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-0a6f-40ae-87a7-70
  remark: TOBM-2yr
```

```
*
* CALIB NASHYD      2035  1  5.0   0.38   0.01  1.75  10.59  0.27   0.000
  [CN=76.0          ]
  [ N = 3.0:Tp 0.32]
```

```
*
  READ STORM                5.0
  [ Ptot= 39.93 mm ]
  fname :
```

2021.06.28_VO Summary - CHI

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-0a6f-40ae-87a7-70
 remark: TOBM-2yr

```
*
* CALIB NASHYD      2036  1  5.0   0.42   0.02  1.42  10.20  0.26   0.000
  [CN=76.0          ]
  [ N = 3.0:Tp 0.09]
```

```
*
  READ STORM                5.0
  [ Ptot= 39.93 mm ]
  fname :
  C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-0a6f-40ae-87a7-70
  remark: TOBM-2yr
```

```
*
* CALIB STANDHYD    2034  1  5.0   2.49   0.30  1.33  25.53  0.64   0.000
  [I%=43.0:S%= 2.00]
```

```
*
  READ STORM                5.0
  [ Ptot= 39.93 mm ]
  fname :
  C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\5fb73891-0a6f-40ae-87a7-70
  remark: TOBM-2yr
```

```
*
* CALIB STANDHYD    2033  1  5.0   3.26   0.36  1.33  24.86  0.62   0.000
  [I%=40.3:S%= 2.00]
```

```
*
* ADD [ 2033+ 2034] 0810  3  5.0   5.75   0.67  1.33  25.15  n/a   0.000
*
* ADD [ 0810+ 2035] 0810  1  5.0   6.13   0.67  1.33  24.25  n/a   0.000
*
* ADD [ 0810+ 2036] 0810  3  5.0   6.55   0.68  1.33  23.35  n/a   0.000
*
* ADD [ 0810+ 0501] 0810  1  5.0  378.34   2.02  4.00  11.40  n/a   0.000
*
* ADD [ 0810+ 0605] 0810  3  5.0  379.99   2.03  4.00  11.39  n/a   0.000
```

=====

```
V  V  I  SSSSS  U  U  A  L           (v 6.1.2003)
V  V  I  SS    U  U  A  A  L
V  V  I  SS    U  U  AAAAA  L
```

2021.06.28_VO Summary - CHI

V V I SS U U A A L
 W I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
 O O T T H H Y Y MM MM O O
 O O T T H H Y M M O O
 000 T T H H Y M M 000

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***** SUMMARY OUTPUT *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

Output filename:

C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\70
 77d6a-69e6-4366-ae57-6c0903651472\sce

Summary filename:

C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\70
 77d6a-69e6-4366-ae57-6c0903651472\sce

DATE: 06-28-2021

TIME: 10:57:10

USER:

COMMENTS: _____

 ** SIMULATION : TOBM-5yr **

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
	min	ha	'	' cms	hrs	mm		cms

START @ 0.00 hrs

 READ STORM 5.0
 [Ptot= 51.53 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-
 3727-4116-ac33-e4
 remark: TOBM-5yr

Block 39 (183-5908)

2021.06.28_VO Summary - CHI

*
 ** CALIB NASHYD 0101 1 5.0 43.80 1.47 1.83 17.05 0.33 0.000
 [CN=77.5]
 [N = 3.0:Tp 0.41]

*
 CHANNEL[2: 0101] 0606 1 5.0 43.80 1.46 1.92 17.05 n/a 0.000

*
 READ STORM 5.0
 [Ptot= 51.53 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-
 3727-4116-ac33-e4
 remark: TOBM-5yr

*
 ** CALIB NASHYD 0104 1 5.0 17.70 0.30 2.17 10.95 0.21 0.000
 [CN=68.5]
 [N = 3.0:Tp 0.56]

*
 ADD [0104+ 0606] 0804 3 5.0 61.50 1.74 2.00 15.30 n/a 0.000

*
 CHANNEL[2: 0804] 0604 1 5.0 61.50 1.72 2.08 15.29 n/a 0.000

*
 READ STORM 5.0
 [Ptot= 51.53 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-
 3727-4116-ac33-e4
 remark: TOBM-5yr

*
 ** CALIB NASHYD 0102 1 5.0 71.90 1.67 2.08 14.20 0.28 0.000
 [CN=74.2]
 [N = 3.0:Tp 0.53]

*
 CHANNEL[2: 0102] 0600 1 5.0 71.90 1.65 2.17 14.20 n/a 0.000

*
 READ STORM 5.0
 [Ptot= 51.53 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-
 3727-4116-ac33-e4
 remark: TOBM-5yr

*
 ** CALIB NASHYD 0103 1 5.0 18.00 0.24 2.42 10.50 0.20 0.000
 [CN=67.1]

Block 39 (183-5908)

2021.06.28_VO Summary - CHI
[N = 3.0:Tp 0.74]

```

*
* ADD [ 0103+ 0600] 0805 3 5.0 89.90 1.88 2.17 13.46 n/a 0.000
*
* ADD [ 0604+ 0805] 0806 3 5.0 151.40 3.58 2.08 14.20 n/a 0.000
*
* CHANNEL[ 2: 0806] 0601 1 5.0 151.40 3.58 2.08 14.20 n/a 0.000
*
* READ STORM 5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4
  remark: TOBM-5yr
*
** CALIB NASHYD 2014 1 5.0 4.08 0.04 2.00 5.64 0.11 0.000
  [CN=45.3 ]
  [ N = 3.0:Tp 0.48]
*
* ADD [ 2014+ 0601] 8021 3 5.0 155.48 3.62 2.08 13.98 n/a 0.000
*
* READ STORM 5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4
  remark: TOBM-5yr
*
** CALIB NASHYD 2015 1 5.0 8.13 0.15 2.17 12.78 0.25 0.000
  [CN=67.6 ]
  [ N = 3.0:Tp 0.62]
*
* READ STORM 5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4
  remark: TOBM-5yr
*
* CALIB STANDHYD 2022 1 5.0 16.01 1.75 1.33 23.57 0.46 0.000
  [I%=35.0:S%= 2.00]
*
* ADD [ 2015+ 2022] 0802 3 5.0 24.14 1.75 1.33 19.94 n/a 0.000
*
* ADD [ 0802+ 8021] 0802 1 5.0 179.62 4.08 2.08 14.78 n/a 0.000

```

2021.06.28_VO Summary - CHI

```

*
* CHANNEL[ 2: 0802] 0602 1 5.0 179.62 4.08 2.08 14.78 n/a 0.000
*
* READ STORM 5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4
  remark: TOBM-5yr
*
* CALIB NASHYD 2016 1 5.0 9.08 0.26 2.33 21.33 0.41 0.000
  [CN=81.8 ]
  [ N = 3.0:Tp 0.75]
*
* ADD [ 2016+ 0602] 0807 3 5.0 188.70 4.33 2.08 15.09 n/a 0.000
*
* CHANNEL[ 2: 0807] 0603 1 5.0 188.70 4.31 2.17 15.09 n/a 0.000
*
* READ STORM 5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4
  remark: TOBM-5yr
*
* CALIB NASHYD 2017 1 5.0 4.38 0.11 2.25 18.26 0.35 0.000
  [CN=78.4 ]
  [ N = 3.0:Tp 0.72]
*
* ADD [ 2017+ 0603] 8031 3 5.0 193.08 4.42 2.17 15.17 n/a 0.000
*
* READ STORM 5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4
  remark: TOBM-5yr
*
* CALIB NASHYD 0106 1 5.0 74.80 1.91 2.08 15.99 0.31 0.000
  [CN=76.8 ]
  [ N = 3.0:Tp 0.56]
*
* SHIFT[ 2: 0106] 0906 1 5.0 74.80 1.91 3.25 15.99 n/a 0.000
  [SHIFT= 72.7 min]
*

```

2021.06.28_VO Summary - CHI

READ STORM 5.0

[Ptot= 51.53 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4

remark: TOBM-5yr

*
 * CALIB NASHYD 0105 1 5.0 27.40 0.87 1.92 17.16 0.33 0.000
 [CN=79.1]
 [N = 3.0:Tp 0.45]

*
 * ADD [0105+ 0906] 0808 3 5.0 102.20 2.18 3.25 16.31 n/a 0.000

*
 * PIPE [2: 0808] 0702 1 5.0 102.20 2.18 3.25 16.31 n/a 0.000

READ STORM 5.0

[Ptot= 51.53 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4

remark: TOBM-5yr

*
 * CALIB STANDHYD 2024 1 5.0 10.71 1.34 1.33 32.52 0.63 0.000
 [I%=35.0:S%= 2.00]

*
 * ADD [2024+ 0702] 0809 3 5.0 112.91 2.27 3.25 17.84 n/a 0.000

*
 * PIPE [2: 0809] 0703 1 5.0 112.91 2.27 3.25 17.84 n/a 0.000

*
 * PIPE [2: 0703] 0704 1 5.0 112.91 2.26 3.33 17.84 n/a 0.000

READ STORM 5.0

[Ptot= 51.53 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4

remark: TOBM-5yr

*
 * CALIB NASHYD 2018 1 5.0 9.17 0.09 2.00 5.49 0.11 0.000
 [CN=43.9]
 [N = 3.0:Tp 0.47]

*
 * PIPE [2: 2018] 0701 1 5.0 9.17 0.09 2.08 5.49 n/a 0.000

READ STORM 5.0

Block 39 (183-5908)

2021.06.28_VO Summary - CHI

[Ptot= 51.53 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4

remark: TOBM-5yr

*
 * CALIB NASHYD 2012 1 5.0 8.21 0.17 2.25 14.50 0.28 0.000
 [CN=72.5]
 [N = 3.0:Tp 0.66]

READ STORM 5.0

[Ptot= 51.53 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4

remark: TOBM-5yr

*
 * CALIB STANDHYD 2028 1 5.0 6.70 0.94 1.33 37.12 0.72 0.000
 [I%=35.0:S%= 2.00]

*
 * ADD [2012+ 2028] 0814 3 5.0 14.91 0.95 1.33 24.67 n/a 0.000

READ STORM 5.0

[Ptot= 51.53 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4

remark: TOBM-5yr

*
 * CALIB STANDHYD 2025 1 5.0 5.49 0.73 1.33 32.52 0.63 0.000
 [I%=35.0:S%= 2.00]

*
 * ADD [2025+ 0814] 0801 3 5.0 20.40 1.68 1.33 26.78 n/a 0.000

READ STORM 5.0

[Ptot= 51.53 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4

remark: TOBM-5yr

*
 * CALIB NASHYD 20112 1 5.0 5.67 0.20 1.92 18.98 0.37 0.000
 [CN=79.0]
 [N = 3.0:Tp 0.48]

Block 39 (183-5908)

2021.06.28_VO Summary - CHI

```
*
  READ STORM                5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4
  remark: TOBM-5yr
*
* CALIB STANDHYD           2026 1 5.0   4.59   0.67  1.33  37.12 0.72  0.000
  [ I%=35.0:S%= 2.00 ]
*
  READ STORM                5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4
  remark: TOBM-5yr
*
* CALIB STANDHYD           2030 1 5.0   0.41   0.07  1.33  37.11 0.72  0.000
  [ I%=35.0:S%= 2.00 ]
*
  ADD [ 20112+ 2026 ] 0811 3 5.0  10.26  0.68  1.33  27.10 n/a  0.000
*
  ADD [ 0811+ 2030 ] 0811 1 5.0  10.67  0.76  1.33  27.48 n/a  0.000
*
  CHANNEL [ 2: 0811 ] 0607 1 5.0  10.67  0.67  1.50  27.48 n/a  0.000
*
  READ STORM                5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4
  remark: TOBM-5yr
*
* CALIB STANDHYD           2037 1 5.0   1.44   0.25  1.33  39.36 0.76  0.000
  [ I%=31.9:S%= 2.00 ]
*
  READ STORM                5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4
  remark: TOBM-5yr
*
Block 39 (183-5908)
```

2021.06.28_VO Summary - CHI

```
* CALIB STANDHYD           2029 1 5.0   0.72   0.13  1.33  37.12 0.72  0.000
  [ I%=35.0:S%= 2.00 ]
*
  ADD [ 2029+ 2037 ] 0812 3 5.0   2.16   0.38  1.33  38.61 n/a  0.000
*
  ADD [ 0812+ 0607 ] 0812 1 5.0  12.83   0.97  1.42  29.35 n/a  0.000
*
  CHANNEL [ 2: 0812 ] 0608 1 5.0  12.83   0.93  1.58  29.34 n/a  0.000
*
  READ STORM                5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4
  remark: TOBM-5yr
*
** CALIB NASHYD            2031 1 5.0   4.00   0.17  1.83  19.62 0.38  0.000
  [ CN=80.8 ]
  [ N = 3.0:Tp 0.37 ]
*
  ADD [ 2031+ 0608 ] 0813 3 5.0  16.83   1.06  1.58  27.02 n/a  0.000
*
  ADD [ 0813+ 0801 ] 0813 1 5.0  37.23   2.30  1.50  26.89 n/a  0.000
*
  CHANNEL [ 2: 0813 ] 0609 1 5.0  37.23   2.26  1.58  26.89 n/a  0.000
*
  READ STORM                5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4
  remark: TOBM-5yr
*
* CALIB STANDHYD           2023 1 5.0  12.60   1.55  1.33  32.52 0.63  0.000
  [ I%=35.0:S%= 2.00 ]
*
  ADD [ 2023+ 0609 ] 0815 3 5.0  49.83   3.44  1.50  28.32 n/a  0.000
*
  ADD [ 0815+ 0701 ] 0815 1 5.0  59.00   3.45  1.50  24.77 n/a  0.000
*
  READ STORM                5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-3727-4116-ac33-e4
  remark: TOBM-5yr
*
Block 39 (183-5908)
```

2021.06.28_VO Summary - CHI

```

*
* CALIB NASHYD      0301  1  5.0   6.80   1.19  1.33  25.13  0.49  0.000
  [CN=91.7          ]
  [ N = 3.0:Tp 0.05]
*
* ADD [ 0301+ 0704] 0803  3  5.0  119.71   2.30  3.33  18.26  n/a  0.000
*
* ADD [ 0803+ 8031] 0803  1  5.0   312.79   5.72  2.08  16.35  n/a  0.000
*
* ADD [ 0803+ 0815] 0803  3  5.0   371.79   7.50  2.00  17.69  n/a  0.000
*
** Reservoir
OUTFLOW:           0501  1  5.0   371.79   3.47  3.83  17.65  n/a  0.000
*
  READ STORM                5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-
3727-4116-ac33-e4
  remark: TOBM-5yr
*
* CALIB NASHYD      2032  1  5.0   1.65   0.09  1.50  15.69  0.30  0.000
  [CN=76.2          ]
  [ N = 3.0:Tp 0.15]
*
* CHANNEL[ 2: 2032] 0605  1  5.0   1.65   0.05  1.75  15.50  n/a  0.000
*
  READ STORM                5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-
3727-4116-ac33-e4
  remark: TOBM-5yr
*
* CALIB NASHYD      2035  1  5.0   0.38   0.02  1.75  17.08  0.33  0.000
  [CN=76.0          ]
  [ N = 3.0:Tp 0.32]
*
  READ STORM                5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-
3727-4116-ac33-e4
  remark: TOBM-5yr

```

2021.06.28_VO Summary - CHI

```

*
* CALIB NASHYD      2036  1  5.0   0.42   0.03  1.42  16.44  0.32  0.000
  [CN=76.0          ]
  [ N = 3.0:Tp 0.09]
*
  READ STORM                5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-
3727-4116-ac33-e4
  remark: TOBM-5yr
*
* CALIB STANDHYD    2034  1  5.0   2.49   0.42  1.33  35.22  0.68  0.000
  [I%=43.0:S%= 2.00]
*
  READ STORM                5.0
  [ Ptot= 51.53 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\7a3715d2-7a85-41d0-9da3-7b61a499b105\2ce0b141-
3727-4116-ac33-e4
  remark: TOBM-5yr
*
* CALIB STANDHYD    2033  1  5.0   3.26   0.51  1.33  34.44  0.67  0.000
  [I%=40.3:S%= 2.00]
*
* ADD [ 2033+ 2034] 0810  3  5.0   5.75   0.93  1.33  34.78  n/a  0.000
*
* ADD [ 0810+ 2035] 0810  1  5.0   6.13   0.93  1.33  33.68  n/a  0.000
*
* ADD [ 0810+ 2036] 0810  3  5.0   6.55   0.96  1.33  32.58  n/a  0.000
*
* ADD [ 0810+ 0501] 0810  1  5.0  378.34   3.52  3.83  17.90  n/a  0.000
*
* ADD [ 0810+ 0605] 0810  3  5.0  379.99   3.53  3.83  17.89  n/a  0.000
*

```

2021.06.28_VO Summary - SCS

=====

```
V  V  I  SSSSS  U  U  A  L          (v 6.1.2003)
V  V  I  SS     U  U  A  A  L
V  V  I  SS     U  U  AAAAA L
V  V  I  SS     U  U  A  A  L
W  I  SSSSS  UUUUU  A  A  LLLLL
```

```
000  TTTT  TTTT  H  H  Y  Y  M  M  000  TM
0  0  T  T  H  H  Y  Y  MM  MM  0  0
0  0  T  T  H  H  Y  M  M  0  0
000  T  T  H  H  Y  M  M  000
```

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***** S U M M A R Y O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

Output filename:
 C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\6a1
 aae7d-c8d3-4633-b8cc-6e47d4a2fa36\sce
 Summary filename:
 C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\6a1
 aae7d-c8d3-4633-b8cc-6e47d4a2fa36\sce

DATE: 06-28-2021 TIME: 10:56:10

USER:

COMMENTS: _____

```
*****
** SIMULATION : 100yr SCS (MTO) **
*****
```

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
		min	ha	cms	hrs	mm		cms

START @ 0.00 hrs

Block 39 (183-5908)

2021.06.28_VO Summary - SCS

```
READ STORM 15.0
[ Ptot=121.44 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-
f19c-4d53-ba6b-e1
remark: SCS24H - 100yr (MTO)
```

```
*
** CALIB NASHYD 0101 1 5.0 43.80 4.87 12.25 69.98 0.58 0.000
[CN=77.5 ]
[ N = 3.0:Tp 0.41]
```

```
* CHANNEL[ 2: 0101] 0606 1 5.0 43.80 4.84 12.33 69.98 n/a 0.000
```

```
*
READ STORM 15.0
[ Ptot=121.44 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-
f19c-4d53-ba6b-e1
remark: SCS24H - 100yr (MTO)
```

```
*
** CALIB NASHYD 0104 1 5.0 17.70 1.20 12.50 54.53 0.45 0.000
[CN=68.5 ]
[ N = 3.0:Tp 0.56]
```

```
* ADD [ 0104+ 0606] 0804 3 5.0 61.50 6.00 12.33 65.53 n/a 0.000
```

```
* CHANNEL[ 2: 0804] 0604 1 5.0 61.50 5.94 12.42 65.53 n/a 0.000
```

```
*
READ STORM 15.0
[ Ptot=121.44 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-
f19c-4d53-ba6b-e1
remark: SCS24H - 100yr (MTO)
```

```
*
** CALIB NASHYD 0102 1 5.0 71.90 5.99 12.42 63.49 0.52 0.000
[CN=74.2 ]
[ N = 3.0:Tp 0.53]
```

```
* CHANNEL[ 2: 0102] 0600 1 5.0 71.90 5.96 12.50 63.49 n/a 0.000
```

```
*
READ STORM 15.0
[ Ptot=121.44 mm ]
fname :
```

Block 39 (183-5908)

2021.06.28_VO Summary - SCS

C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1

remark: SCS24H - 100yr (MTO)

*
 ** CALIB NASHYD 0103 1 5.0 18.00 0.96 12.67 52.83 0.44 0.000
 [CN=67.1]
 [N = 3.0:Tp 0.74]

* ADD [0103+ 0600] 0805 3 5.0 89.90 6.88 12.50 61.36 n/a 0.000

* ADD [0604+ 0805] 0806 3 5.0 151.40 12.74 12.42 63.05 n/a 0.000

* CHANNEL [2: 0806] 0601 1 5.0 151.40 12.73 12.42 63.05 n/a 0.000

*
 READ STORM 15.0
 [Ptot=121.44 mm]
 fname :

C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1

remark: SCS24H - 100yr (MTO)

*
 ** CALIB NASHYD 2014 1 5.0 4.08 0.17 12.42 31.08 0.26 0.000
 [CN=45.3]
 [N = 3.0:Tp 0.48]

* ADD [2014+ 0601] 8021 3 5.0 155.48 12.89 12.42 62.21 n/a 0.000

*
 READ STORM 15.0
 [Ptot=121.44 mm]
 fname :

C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1

remark: SCS24H - 100yr (MTO)

*
 ** CALIB NASHYD 2015 1 5.0 8.13 0.53 12.50 56.78 0.47 0.000
 [CN=67.6]
 [N = 3.0:Tp 0.62]

*
 READ STORM 15.0
 [Ptot=121.44 mm]
 fname :

C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1

remark: SCS24H - 100yr (MTO)

2021.06.28_VO Summary - SCS

C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1

remark: SCS24H - 100yr (MTO)

*
 * CALIB STANDHYD 2022 1 5.0 16.01 3.18 12.00 70.16 0.58 0.000
 [I%=35.0:S%= 2.00]
 *
 ADD [2015+ 2022] 0802 3 5.0 24.14 3.40 12.00 65.65 n/a 0.000

* ADD [0802+ 8021] 0802 1 5.0 179.62 14.17 12.42 62.67 n/a 0.000

* CHANNEL [2: 0802] 0602 1 5.0 179.62 14.20 12.42 62.67 n/a 0.000

*
 READ STORM 15.0
 [Ptot=121.44 mm]
 fname :

C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1

remark: SCS24H - 100yr (MTO)

*
 * CALIB NASHYD 2016 1 5.0 9.08 0.73 12.67 78.79 0.65 0.000
 [CN=81.8]
 [N = 3.0:Tp 0.75]
 *
 ADD [2016+ 0602] 0807 3 5.0 188.70 14.88 12.42 63.45 n/a 0.000

* CHANNEL [2: 0807] 0603 1 5.0 188.70 14.87 12.50 63.45 n/a 0.000

*
 READ STORM 15.0
 [Ptot=121.44 mm]
 fname :

C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1

remark: SCS24H - 100yr (MTO)

*
 * CALIB NASHYD 2017 1 5.0 4.38 0.33 12.67 72.30 0.60 0.000
 [CN=78.4]
 [N = 3.0:Tp 0.72]
 *
 ADD [2017+ 0603] 8031 3 5.0 193.08 15.20 12.50 63.65 n/a 0.000

*
 READ STORM 15.0
 [Ptot=121.44 mm]
 fname :

C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1

remark: SCS24H - 100yr (MTO)

2021.06.28_VO Summary - SCS

* CALIB NASHYD 0106 1 5.0 74.80 6.43 12.42 68.00 0.56 0.000
[CN=76.8]
[N = 3.0:Tp 0.56]

* SHIFT[2: 0106] 0906 1 5.0 74.80 6.43 13.58 68.00 n/a 0.000
[SHIFT= 72.7 min]

* READ STORM 15.0
[Ptot=121.44 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1
remark: SCS24H - 100yr (MTO)

* CALIB NASHYD 0105 1 5.0 27.40 2.93 12.33 71.32 0.59 0.000
[CN=79.1]
[N = 3.0:Tp 0.45]

* ADD [0105+ 0906] 0808 3 5.0 102.20 7.07 13.58 68.89 n/a 0.000

* PIPE [2: 0808] 0702 1 5.0 102.20 7.06 13.58 68.89 n/a 0.000

* READ STORM 15.0
[Ptot=121.44 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1
remark: SCS24H - 100yr (MTO)

* CALIB STANDHYD 2024 1 5.0 10.71 3.19 12.00 95.17 0.78 0.000
[I%=35.0:S%= 2.00]

* ADD [2024+ 0702] 0809 3 5.0 112.91 7.23 13.58 71.38 n/a 0.000

* PIPE [2: 0809] 0703 1 5.0 112.91 7.21 13.58 71.38 n/a 0.000

* PIPE [2: 0703] 0704 1 5.0 112.91 7.20 13.67 71.38 n/a 0.000

* READ STORM 15.0
[Ptot=121.44 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1
remark: SCS24H - 100yr (MTO)

2021.06.28_VO Summary - SCS

* CALIB NASHYD 2018 1 5.0 9.17 0.37 12.33 30.05 0.25 0.000
[CN=43.9]
[N = 3.0:Tp 0.47]

* PIPE [2: 2018] 0701 1 5.0 9.17 0.37 12.42 30.05 n/a 0.000

* READ STORM 15.0
[Ptot=121.44 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1
remark: SCS24H - 100yr (MTO)

* CALIB NASHYD 2012 1 5.0 8.21 0.57 12.58 62.76 0.52 0.000
[CN=72.5]
[N = 3.0:Tp 0.66]

* READ STORM 15.0
[Ptot=121.44 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1
remark: SCS24H - 100yr (MTO)

* CALIB STANDHYD 2028 1 5.0 6.70 2.17 12.00 102.92 0.85 0.000
[I%=35.0:S%= 2.00]

* ADD [2012+ 2028] 0814 3 5.0 14.91 2.40 12.00 80.81 n/a 0.000

* READ STORM 15.0
[Ptot=121.44 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1
remark: SCS24H - 100yr (MTO)

* CALIB STANDHYD 2025 1 5.0 5.49 1.67 12.00 95.17 0.78 0.000
[I%=35.0:S%= 2.00]

* ADD [2025+ 0814] 0801 3 5.0 20.40 4.07 12.00 84.67 n/a 0.000

* READ STORM 15.0
[Ptot=121.44 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1
remark: SCS24H - 100yr (MTO)

2021.06.28_VO Summary - SCS

f19c-4d53-ba6b-e1

remark: SCS24H - 100yr (MTO)

*
 * CALIB NASHYD 20112 1 5.0 5.67 0.59 12.33 73.70 0.61 0.000
 [CN=79.0]
 [N = 3.0:Tp 0.48]

*
 READ STORM 15.0
 [Ptot=121.44 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1

remark: SCS24H - 100yr (MTO)

*
 * CALIB STANDHYD 2026 1 5.0 4.59 1.50 12.00 102.92 0.85 0.000
 [I%=35.0:S%= 2.00]

*
 READ STORM 15.0
 [Ptot=121.44 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1

remark: SCS24H - 100yr (MTO)

*
 * CALIB STANDHYD 2030 1 5.0 0.41 0.14 12.00 102.91 0.85 0.000
 [I%=35.0:S%= 2.00]

*
 ADD [20112+ 2026] 0811 3 5.0 10.26 1.83 12.00 86.77 n/a 0.000

*
 ADD [0811+ 2030] 0811 1 5.0 10.67 1.97 12.00 87.39 n/a 0.000

*
 CHANNEL[2: 0811] 0607 1 5.0 10.67 1.62 12.08 87.38 n/a 0.000

*
 READ STORM 15.0
 [Ptot=121.44 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1

remark: SCS24H - 100yr (MTO)

*
 * CALIB STANDHYD 2029 1 5.0 0.72 0.24 12.00 102.91 0.85 0.000
 [I%=35.0:S%= 2.00]

*
 READ STORM 15.0

2021.06.28_VO Summary - SCS

[Ptot=121.44 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1

remark: SCS24H - 100yr (MTO)

*
 * CALIB STANDHYD 2037 1 5.0 1.44 0.50 12.00 106.63 0.88 0.000
 [I%=31.9:S%= 2.00]

*
 ADD [2029+ 2037] 0812 3 5.0 2.16 0.75 12.00 105.39 n/a 0.000

*
 ADD [0812+ 0607] 0812 1 5.0 12.83 2.22 12.00 90.42 n/a 0.000

*
 CHANNEL[2: 0812] 0608 1 5.0 12.83 1.86 12.17 90.40 n/a 0.000

*
 READ STORM 15.0
 [Ptot=121.44 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1

remark: SCS24H - 100yr (MTO)

*
 ** CALIB NASHYD 2031 1 5.0 4.00 0.52 12.25 75.84 0.62 0.000
 [CN=80.8]
 [N = 3.0:Tp 0.37]

*
 ADD [2031+ 0608] 0813 3 5.0 16.83 2.37 12.17 86.94 n/a 0.000

*
 ADD [0813+ 0801] 0813 1 5.0 37.23 5.90 12.00 85.70 n/a 0.000

*
 CHANNEL[2: 0813] 0609 1 5.0 37.23 5.57 12.08 85.70 n/a 0.000

*
 READ STORM 15.0
 [Ptot=121.44 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1

remark: SCS24H - 100yr (MTO)

*
 * CALIB STANDHYD 2023 1 5.0 12.60 3.42 12.00 95.17 0.78 0.000
 [I%=35.0:S%= 2.00]

*
 ADD [2023+ 0609] 0815 3 5.0 49.83 8.84 12.00 88.09 n/a 0.000

*
 ADD [0815+ 0701] 0815 1 5.0 59.00 8.99 12.00 79.07 n/a 0.000

2021.06.28_VO Summary - SCS

*
 READ STORM 15.0
 [Ptot=121.44 mm]
 fname :
 C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1
 remark: SCS24H - 100yr (MTO)

*
 * CALIB NASHYD 0301 1 5.0 6.80 2.01 12.00 75.68 0.62 0.000
 [CN=91.7]
 [N = 3.0:Tp 0.05]

*
 ADD [0301+ 0704] 0803 3 5.0 119.71 7.27 13.67 71.63 n/a 0.000

*
 ADD [0803+ 8031] 0803 1 5.0 312.79 19.37 12.50 66.70 n/a 0.000

*
 ADD [0803+ 0815] 0803 3 5.0 371.79 23.79 12.42 68.67 n/a 0.000

** Reservoir
 * OUTFLOW: 0501 1 5.0 371.79 22.65 12.58 68.61 n/a 0.000

*
 READ STORM 15.0
 [Ptot=121.44 mm]
 fname :
 C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1
 remark: SCS24H - 100yr (MTO)

*
 * CALIB NASHYD 2032 1 5.0 1.65 0.35 12.00 66.88 0.55 0.000
 [CN=76.2]
 [N = 3.0:Tp 0.15]

*
 CHANNEL[2: 2032] 0605 1 5.0 1.65 0.24 12.17 66.68 n/a 0.000

*
 READ STORM 15.0
 [Ptot=121.44 mm]
 fname :
 C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1
 remark: SCS24H - 100yr (MTO)

*
 * CALIB NASHYD 2035 1 5.0 0.38 0.05 12.17 68.92 0.57 0.000
 [CN=76.0]
 [N = 3.0:Tp 0.32]

2021.06.28_VO Summary - SCS

READ STORM 15.0
 [Ptot=121.44 mm]
 fname :
 C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1
 remark: SCS24H - 100yr (MTO)

*
 * CALIB NASHYD 2036 1 5.0 0.42 0.11 12.00 66.34 0.55 0.000
 [CN=76.0]
 [N = 3.0:Tp 0.09]

*
 READ STORM 15.0
 [Ptot=121.44 mm]
 fname :
 C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1
 remark: SCS24H - 100yr (MTO)

*
 * CALIB STANDHYD 2034 1 5.0 2.49 0.81 12.00 99.20 0.82 0.000
 [I%=43.0:S%= 2.00]

*
 READ STORM 15.0
 [Ptot=121.44 mm]
 fname :
 C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\0a8b5e28-f19c-4d53-ba6b-e1
 remark: SCS24H - 100yr (MTO)

*
 * CALIB STANDHYD 2033 1 5.0 3.26 1.04 12.00 98.10 0.81 0.000
 [I%=40.3:S%= 2.00]

*
 ADD [2033+ 2034] 0810 3 5.0 5.75 1.85 12.00 98.58 n/a 0.000

*
 ADD [0810+ 2035] 0810 1 5.0 6.13 1.89 12.00 96.74 n/a 0.000

*
 ADD [0810+ 2036] 0810 3 5.0 6.55 2.00 12.00 94.79 n/a 0.000

*
 ADD [0810+ 0501] 0810 1 5.0 378.34 22.91 12.58 69.06 n/a 0.000

*
 ADD [0810+ 0605] 0810 3 5.0 379.99 23.01 12.58 69.05 n/a 0.000

=====
 =====

2021.06.28_VO Summary - SCS

```
V V I SSSSS U U A L (v 6.1.2003)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSSS UUUU A A LLLLL
```

```
000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000
```

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***** SUMMARY OUTPUT *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

Output filename:
 C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\126
 3976f-92e3-4838-beb8-8f9843d557eb\sce

Summary filename:
 C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\126
 3976f-92e3-4838-beb8-8f9843d557eb\sce

DATE: 06-28-2021 TIME: 10:56:09

USER:

COMMENTS: _____

```
*****
** SIMULATION : 10yr SCS (MTO) **
*****
```

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
		min	ha	' cms	hrs	mm		cms

START @ 0.00 hrs

```
-----
READ STORM 15.0
[ Ptot= 84.36 mm ]
fname :
```

Block 39 (183-5908)

2021.06.28_VO Summary - SCS

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
 remark: SCS24H - 10yr (MTO)

```
*
** CALIB NASHYD 0101 1 5.0 43.80 2.74 12.25 39.96 0.47 0.000
[CN=77.5 ]
[ N = 3.0:Tp 0.41]
*
CHANNEL[ 2: 0101] 0606 1 5.0 43.80 2.71 12.33 39.96 n/a 0.000
*
READ STORM 15.0
[ Ptot= 84.36 mm ]
fname :
```

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
 remark: SCS24H - 10yr (MTO)

```
*
** CALIB NASHYD 0104 1 5.0 17.70 0.62 12.50 29.01 0.34 0.000
[CN=68.5 ]
[ N = 3.0:Tp 0.56]
*
ADD [ 0104+ 0606] 0804 3 5.0 61.50 3.31 12.33 36.81 n/a 0.000
*
CHANNEL[ 2: 0804] 0604 1 5.0 61.50 3.28 12.42 36.80 n/a 0.000
*
READ STORM 15.0
[ Ptot= 84.36 mm ]
fname :
```

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
 remark: SCS24H - 10yr (MTO)

```
*
** CALIB NASHYD 0102 1 5.0 71.90 3.25 12.42 35.17 0.42 0.000
[CN=74.2 ]
[ N = 3.0:Tp 0.53]
*
CHANNEL[ 2: 0102] 0600 1 5.0 71.90 3.23 12.50 35.17 n/a 0.000
*
READ STORM 15.0
[ Ptot= 84.36 mm ]
fname :
```

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
 remark: SCS24H - 10yr (MTO)

Block 39 (183-5908)

2021.06.28_VO Summary - SCS

```
*
** CALIB NASHYD      0103  1  5.0  18.00  0.49 12.67  27.97 0.33  0.000
   [CN=67.1          ]
   [ N = 3.0:Tp 0.74]
*
ADD [ 0103+ 0600] 0805  3  5.0  89.90  3.70 12.50  33.73 n/a  0.000
*
ADD [ 0604+ 0805] 0806  3  5.0  151.40  6.94 12.50  34.98 n/a  0.000
*
CHANNEL[ 2: 0806] 0601  1  5.0  151.40  6.95 12.50  34.98 n/a  0.000
*
READ STORM          15.0
[ Ptot= 84.36 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
remark: SCS24H - 10yr (MTO)

*
** CALIB NASHYD      2014  1  5.0   4.08  0.08 12.42  15.57 0.18  0.000
   [CN=45.3          ]
   [ N = 3.0:Tp 0.48]
*
ADD [ 2014+ 0601] 8021  3  5.0  155.48  7.03 12.50  34.47 n/a  0.000
*
READ STORM          15.0
[ Ptot= 84.36 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
remark: SCS24H - 10yr (MTO)

*
** CALIB NASHYD      2015  1  5.0   8.13  0.28 12.58  31.20 0.37  0.000
   [CN=67.6          ]
   [ N = 3.0:Tp 0.62]
*
READ STORM          15.0
[ Ptot= 84.36 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
remark: SCS24H - 10yr (MTO)

*
** CALIB STANDHYD   2022  1  5.0  16.01  1.87 12.00  44.02 0.52  0.000
   [I%=35.0:S%= 2.00]
*
```

2021.06.28_VO Summary - SCS

```
ADD [ 2015+ 2022] 0802  3  5.0  24.14  1.98 12.00  39.70 n/a  0.000
*
ADD [ 0802+ 8021] 0802  1  5.0  179.62  7.77 12.50  35.17 n/a  0.000
*
CHANNEL[ 2: 0802] 0602  1  5.0  179.62  7.78 12.50  35.17 n/a  0.000
*
READ STORM          15.0
[ Ptot= 84.36 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
remark: SCS24H - 10yr (MTO)

*
** CALIB NASHYD      2016  1  5.0   9.08  0.43 12.67  46.72 0.55  0.000
   [CN=81.8          ]
   [ N = 3.0:Tp 0.75]
*
ADD [ 2016+ 0602] 0807  3  5.0  188.70  8.19 12.50  35.73 n/a  0.000
*
CHANNEL[ 2: 0807] 0603  1  5.0  188.70  8.19 12.50  35.73 n/a  0.000
*
READ STORM          15.0
[ Ptot= 84.36 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
remark: SCS24H - 10yr (MTO)

*
** CALIB NASHYD      2017  1  5.0   4.38  0.19 12.67  41.78 0.50  0.000
   [CN=78.4          ]
   [ N = 3.0:Tp 0.72]
*
ADD [ 2017+ 0603] 8031  3  5.0  193.08  8.38 12.50  35.86 n/a  0.000
*
READ STORM          15.0
[ Ptot= 84.36 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
remark: SCS24H - 10yr (MTO)

*
** CALIB NASHYD      0106  1  5.0  74.80  3.57 12.50  38.39 0.46  0.000
   [CN=76.8          ]
   [ N = 3.0:Tp 0.56]
*
```

```

2021.06.28_VO Summary - SCS
SHIFT[ 2: 0106] 0906 1 5.0 74.80 3.57 13.67 38.39 n/a 0.000
[SHIFT= 72.7 min]
*
READ STORM 15.0
[ Ptot= 84.36 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
remark: SCS24H - 10yr (MTO)
*
** CALIB NASHYD 0105 1 5.0 27.40 1.65 12.33 40.68 0.48 0.000
[CN=79.1 ]
[ N = 3.0:Tp 0.45]
*
ADD [ 0105+ 0906] 0808 3 5.0 102.20 3.94 13.58 39.00 n/a 0.000
*
PIPE [ 2: 0808] 0702 1 5.0 102.20 3.94 13.58 39.00 n/a 0.000
*
READ STORM 15.0
[ Ptot= 84.36 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
remark: SCS24H - 10yr (MTO)
*
* CALIB STANDHYD 2024 1 5.0 10.71 1.81 12.00 60.99 0.72 0.000
[I%=35.0:S%= 2.00]
*
ADD [ 2024+ 0702] 0809 3 5.0 112.91 4.05 13.58 41.09 n/a 0.000
*
PIPE [ 2: 0809] 0703 1 5.0 112.91 4.05 13.67 41.09 n/a 0.000
*
PIPE [ 2: 0703] 0704 1 5.0 112.91 4.03 13.67 41.09 n/a 0.000
*
READ STORM 15.0
[ Ptot= 84.36 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
remark: SCS24H - 10yr (MTO)
*
* CALIB NASHYD 2018 1 5.0 9.17 0.18 12.33 15.06 0.18 0.000
[CN=43.9 ]
[ N = 3.0:Tp 0.47]
*

```

```

2021.06.28_VO Summary - SCS
PIPE [ 2: 2018] 0701 1 5.0 9.17 0.18 12.42 15.06 n/a 0.000
*
READ STORM 15.0
[ Ptot= 84.36 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
remark: SCS24H - 10yr (MTO)
*
* CALIB NASHYD 2012 1 5.0 8.21 0.31 12.58 35.01 0.41 0.000
[CN=72.5 ]
[ N = 3.0:Tp 0.66]
*
READ STORM 15.0
[ Ptot= 84.36 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
remark: SCS24H - 10yr (MTO)
*
* CALIB STANDHYD 2028 1 5.0 6.70 1.27 12.00 67.41 0.80 0.000
[I%=35.0:S%= 2.00]
*
ADD [ 2012+ 2028] 0814 3 5.0 14.91 1.38 12.00 49.57 n/a 0.000
*
READ STORM 15.0
[ Ptot= 84.36 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
remark: SCS24H - 10yr (MTO)
*
* CALIB STANDHYD 2025 1 5.0 5.49 0.95 12.00 60.99 0.72 0.000
[I%=35.0:S%= 2.00]
*
ADD [ 2025+ 0814] 0801 3 5.0 20.40 2.34 12.00 52.64 n/a 0.000
*
READ STORM 15.0
[ Ptot= 84.36 mm ]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
remark: SCS24H - 10yr (MTO)
*

```

2021.06.28_VO Summary - SCS

* CALIB NASHYD 20112 1 5.0 5.67 0.34 12.33 42.88 0.51 0.000
 [CN=79.0]
 [N = 3.0:Tp 0.48]

* READ STORM 15.0
 [Ptot= 84.36 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
 remark: SCS24H - 10yr (MTO)

* CALIB STANDHYD 2026 1 5.0 4.59 0.88 12.00 67.41 0.80 0.000
 [I%=35.0:S%= 2.00]

* READ STORM 15.0
 [Ptot= 84.36 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
 remark: SCS24H - 10yr (MTO)

* CALIB STANDHYD 2030 1 5.0 0.41 0.09 12.00 67.40 0.80 0.000
 [I%=35.0:S%= 2.00]

* ADD [20112+ 2026] 0811 3 5.0 10.26 1.06 12.00 53.85 n/a 0.000

* ADD [0811+ 2030] 0811 1 5.0 10.67 1.15 12.00 54.37 n/a 0.000

* CHANNEL[2: 0811] 0607 1 5.0 10.67 1.03 12.08 54.37 n/a 0.000

* READ STORM 15.0
 [Ptot= 84.36 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
 remark: SCS24H - 10yr (MTO)

* CALIB STANDHYD 2029 1 5.0 0.72 0.16 12.00 67.41 0.80 0.000
 [I%=35.0:S%= 2.00]

* READ STORM 15.0
 [Ptot= 84.36 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2

2021.06.28_VO Summary - SCS

remark: SCS24H - 10yr (MTO)

* CALIB STANDHYD 2037 1 5.0 1.44 0.33 12.00 70.53 0.84 0.000
 [I%=31.9:S%= 2.00]

* ADD [2029+ 2037] 0812 3 5.0 2.16 0.48 12.00 69.49 n/a 0.000

* ADD [0812+ 0607] 0812 1 5.0 12.83 1.36 12.00 56.91 n/a 0.000

* CHANNEL[2: 0812] 0608 1 5.0 12.83 1.24 12.25 56.90 n/a 0.000

* READ STORM 15.0
 [Ptot= 84.36 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
 remark: SCS24H - 10yr (MTO)

** CALIB NASHYD 2031 1 5.0 4.00 0.30 12.25 44.31 0.53 0.000
 [CN=80.8]
 [N = 3.0:Tp 0.37]

* ADD [2031+ 0608] 0813 3 5.0 16.83 1.54 12.25 53.91 n/a 0.000

* ADD [0813+ 0801] 0813 1 5.0 37.23 3.44 12.00 53.21 n/a 0.000

* CHANNEL[2: 0813] 0609 1 5.0 37.23 3.32 12.08 53.21 n/a 0.000

* READ STORM 15.0
 [Ptot= 84.36 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
 remark: SCS24H - 10yr (MTO)

* CALIB STANDHYD 2023 1 5.0 12.60 2.12 12.00 60.99 0.72 0.000
 [I%=35.0:S%= 2.00]

* ADD [2023+ 0609] 0815 3 5.0 49.83 5.16 12.00 55.18 n/a 0.000

* ADD [0815+ 0701] 0815 1 5.0 59.00 5.22 12.00 48.94 n/a 0.000

* READ STORM 15.0
 [Ptot= 84.36 mm]
 fname :

2021.06.28_VO Summary - SCS
 C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
 remark: SCS24H - 10yr (MTO)

```
*
* CALIB NASHYD      0301  1  5.0   6.80   1.33 12.00  48.41 0.57  0.000
  [CN=91.7          ]
  [ N = 3.0:Tp 0.05]
*
* ADD [ 0301+ 0704] 0803  3  5.0  119.71   4.08 13.67  41.50 n/a  0.000
*
* ADD [ 0803+ 8031] 0803  1  5.0   312.79  10.83 12.50  38.02 n/a  0.000
*
* ADD [ 0803+ 0815] 0803  3  5.0   371.79  13.69 12.42  39.76 n/a  0.000
*
** Reservoir
OUTFLOW:           0501  1  5.0   371.79   9.60 12.92  39.70 n/a  0.000
*
  READ STORM              15.0
  [ Ptot= 84.36 mm ]
  fname :
```

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
 remark: SCS24H - 10yr (MTO)

```
*
* CALIB NASHYD      2032  1  5.0   1.65   0.19 12.00  37.69 0.45  0.000
  [CN=76.2          ]
  [ N = 3.0:Tp 0.15]
*
* CHANNEL[ 2: 2032] 0605  1  5.0   1.65   0.13 12.17  37.50 n/a  0.000
*
  READ STORM              15.0
  [ Ptot= 84.36 mm ]
  fname :
```

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
 remark: SCS24H - 10yr (MTO)

```
*
* CALIB NASHYD      2035  1  5.0   0.38   0.03 12.17  39.46 0.47  0.000
  [CN=76.0          ]
  [ N = 3.0:Tp 0.32]
*
* READ STORM              15.0
  [ Ptot= 84.36 mm ]
  fname :
```

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
 remark: SCS24H - 10yr (MTO)

2021.06.28_VO Summary - SCS
 517c-4876-ae65-f2
 remark: SCS24H - 10yr (MTO)

```
*
* CALIB NASHYD      2036  1  5.0   0.42   0.06 12.00  37.98 0.45  0.000
  [CN=76.0          ]
  [ N = 3.0:Tp 0.09]
*
* READ STORM              15.0
  [ Ptot= 84.36 mm ]
  fname :
```

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
 remark: SCS24H - 10yr (MTO)

```
*
* CALIB STANDHYD    2034  1  5.0   2.49   0.51 12.00  64.47 0.76  0.000
  [I%=43.0:S%= 2.00]
*
* READ STORM              15.0
  [ Ptot= 84.36 mm ]
  fname :
```

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\23b73696-517c-4876-ae65-f2
 remark: SCS24H - 10yr (MTO)

```
*
* CALIB STANDHYD    2033  1  5.0   3.26   0.61 12.00  63.50 0.75  0.000
  [I%=40.3:S%= 2.00]
*
* ADD [ 2033+ 2034] 0810  3  5.0   5.75   1.12 12.00  63.92 n/a  0.000
*
* ADD [ 0810+ 2035] 0810  1  5.0   6.13   1.14 12.00  62.40 n/a  0.000
*
* ADD [ 0810+ 2036] 0810  3  5.0   6.55   1.21 12.00  60.84 n/a  0.000
*
* ADD [ 0810+ 0501] 0810  1  5.0  378.34   9.71 12.92  40.06 n/a  0.000
*
* ADD [ 0810+ 0605] 0810  3  5.0  379.99   9.74 12.92  40.05 n/a  0.000
*
=====
```

```
V  V  I  SSSSS  U  U  A  L          (v 6.1.2003)
V  V  I  SS     U  U  A  A  L
V  V  I  SS     U  U  AAAAA L
V  V  I  SS     U  U  A  A  L
```

2021.06.28_VO Summary - SCS

VV I SSSSS UUUUU A A LLLLL

```

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000
    
```

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***** S U M M A R Y O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

Output filename:

C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\d2c72fb0-e0bb-4de4-8f5d-250ee99ff35b\sce

Summary filename:

C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\d2c72fb0-e0bb-4de4-8f5d-250ee99ff35b\sce

DATE: 06-28-2021

TIME: 10:56:10

USER:

COMMENTS: _____

 ** SIMULATION : 25yr SCS (MTO) **

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
		min	ha	' cms	hrs	mm		cms

START @ 0.00 hrs

READ STORM 15.0

[Ptot= 99.43 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

2021.06.28_VO Summary - SCS

```

* ** CALIB NASHYD 0101 1 5.0 43.80 3.58 12.25 51.78 0.52 0.000
[CN=77.5 ]
[ N = 3.0:Tp 0.41]
    
```

```

* CHANNEL[ 2: 0101] 0606 1 5.0 43.80 3.55 12.33 51.78 n/a 0.000
    
```

```

* READ STORM 15.0
    
```

[Ptot= 99.43 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

```

* ** CALIB NASHYD 0104 1 5.0 17.70 0.84 12.50 38.88 0.39 0.000
[CN=68.5 ]
[ N = 3.0:Tp 0.56]
    
```

```

* ADD [ 0104+ 0606] 0804 3 5.0 61.50 4.36 12.33 48.07 n/a 0.000
    
```

```

* CHANNEL[ 2: 0804] 0604 1 5.0 61.50 4.32 12.42 48.07 n/a 0.000
    
```

```

* READ STORM 15.0
    
```

[Ptot= 99.43 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

```

* ** CALIB NASHYD 0102 1 5.0 71.90 4.32 12.42 46.25 0.47 0.000
[CN=74.2 ]
[ N = 3.0:Tp 0.53]
    
```

```

* CHANNEL[ 2: 0102] 0600 1 5.0 71.90 4.30 12.50 46.25 n/a 0.000
    
```

```

* READ STORM 15.0
    
```

[Ptot= 99.43 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

```

* ** CALIB NASHYD 0103 1 5.0 18.00 0.67 12.67 37.57 0.38 0.000
[CN=67.1 ]
[ N = 3.0:Tp 0.74]
    
```

2021.06.28_VO Summary - SCS

```

*
*   ADD [ 0103+ 0600] 0805 3 5.0 89.90 4.94 12.50 44.51 n/a 0.000
*
*   ADD [ 0604+ 0805] 0806 3 5.0 151.40 9.19 12.50 45.95 n/a 0.000
*
*   CHANNEL[ 2: 0806] 0601 1 5.0 151.40 9.21 12.50 45.95 n/a 0.000
*
*   READ STORM 15.0
*   [ Ptot= 99.43 mm ]
*   fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-
b8bc-4507-88c5-e7
*   remark: SCS24H - 25yr (MTO)
*
** CALIB NASHYD 2014 1 5.0 4.08 0.11 12.42 21.39 0.22 0.000
*   [CN=45.3 ]
*   [ N = 3.0:Tp 0.48]
*
*   ADD [ 2014+ 0601] 8021 3 5.0 155.48 9.32 12.50 45.31 n/a 0.000
*
*   READ STORM 15.0
*   [ Ptot= 99.43 mm ]
*   fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-
b8bc-4507-88c5-e7
*   remark: SCS24H - 25yr (MTO)
*
** CALIB NASHYD 2015 1 5.0 8.13 0.38 12.50 41.12 0.41 0.000
*   [CN=67.6 ]
*   [ N = 3.0:Tp 0.62]
*
*   READ STORM 15.0
*   [ Ptot= 99.43 mm ]
*   fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-
b8bc-4507-88c5-e7
*   remark: SCS24H - 25yr (MTO)
*
*
*   CALIB STANDHYD 2022 1 5.0 16.01 2.44 12.00 54.32 0.55 0.000
*   [I%=35.0:S%= 2.00]
*
*   ADD [ 2015+ 2022] 0802 3 5.0 24.14 2.60 12.00 49.87 n/a 0.000
*
*   ADD [ 0802+ 8021] 0802 1 5.0 179.62 10.23 12.42 45.92 n/a 0.000
*

```

2021.06.28_VO Summary - SCS

```

CHANNEL[ 2: 0802] 0602 1 5.0 179.62 10.25 12.42 45.92 n/a 0.000
*
*   READ STORM 15.0
*   [ Ptot= 99.43 mm ]
*   fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-
b8bc-4507-88c5-e7
*   remark: SCS24H - 25yr (MTO)
*
*
*   CALIB NASHYD 2016 1 5.0 9.08 0.55 12.67 59.47 0.60 0.000
*   [CN=81.8 ]
*   [ N = 3.0:Tp 0.75]
*
*   ADD [ 2016+ 0602] 0807 3 5.0 188.70 10.76 12.42 46.58 n/a 0.000
*
*   CHANNEL[ 2: 0807] 0603 1 5.0 188.70 10.79 12.50 46.58 n/a 0.000
*
*   READ STORM 15.0
*   [ Ptot= 99.43 mm ]
*   fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-
b8bc-4507-88c5-e7
*   remark: SCS24H - 25yr (MTO)
*
*
*   CALIB NASHYD 2017 1 5.0 4.38 0.25 12.67 53.83 0.54 0.000
*   [CN=78.4 ]
*   [ N = 3.0:Tp 0.72]
*
*   ADD [ 2017+ 0603] 8031 3 5.0 193.08 11.03 12.50 46.74 n/a 0.000
*
*   READ STORM 15.0
*   [ Ptot= 99.43 mm ]
*   fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-
b8bc-4507-88c5-e7
*   remark: SCS24H - 25yr (MTO)
*
*
*   CALIB NASHYD 0106 1 5.0 74.80 4.69 12.50 50.03 0.50 0.000
*   [CN=76.8 ]
*   [ N = 3.0:Tp 0.56]
*
*   SHIFT[ 2: 0106] 0906 1 5.0 74.80 4.69 13.67 50.03 n/a 0.000
*   [SHIFT= 72.7 min]
*
*   READ STORM 15.0

```

2021.06.28_VO Summary - SCS

[Ptot= 99.43 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

*
 * CALIB NASHYD 0105 1 5.0 27.40 2.15 12.33 52.78 0.53 0.000
 [CN=79.1]
 [N = 3.0:Tp 0.45]

*
 * ADD [0105+ 0906] 0808 3 5.0 102.20 5.17 13.58 50.77 n/a 0.000

*
 * PIPE [2: 0808] 0702 1 5.0 102.20 5.17 13.58 50.77 n/a 0.000

*
 * READ STORM 15.0
 [Ptot= 99.43 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

*
 * CALIB STANDHYD 2024 1 5.0 10.71 2.25 12.00 74.71 0.75 0.000
 [I%=35.0:S%= 2.00]

*
 * ADD [2024+ 0702] 0809 3 5.0 112.91 5.30 13.58 53.04 n/a 0.000

*
 * PIPE [2: 0809] 0703 1 5.0 112.91 5.29 13.67 53.04 n/a 0.000

*
 * PIPE [2: 0703] 0704 1 5.0 112.91 5.28 13.67 53.04 n/a 0.000

*
 * READ STORM 15.0
 [Ptot= 99.43 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

*
 * CALIB NASHYD 2018 1 5.0 9.17 0.25 12.33 20.68 0.21 0.000
 [CN=43.9]
 [N = 3.0:Tp 0.47]

*
 * PIPE [2: 2018] 0701 1 5.0 9.17 0.25 12.42 20.68 n/a 0.000

*
 * READ STORM 15.0
 [Ptot= 99.43 mm]

2021.06.28_VO Summary - SCS

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

*
 * CALIB NASHYD 2012 1 5.0 8.21 0.41 12.58 45.85 0.46 0.000
 [CN=72.5]
 [N = 3.0:Tp 0.66]

*
 * READ STORM 15.0
 [Ptot= 99.43 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

*
 * CALIB STANDHYD 2028 1 5.0 6.70 1.70 12.00 81.74 0.82 0.000
 [I%=35.0:S%= 2.00]

*
 * ADD [2012+ 2028] 0814 3 5.0 14.91 1.86 12.00 61.98 n/a 0.000

*
 * READ STORM 15.0
 [Ptot= 99.43 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

*
 * CALIB STANDHYD 2025 1 5.0 5.49 1.18 12.00 74.71 0.75 0.000
 [I%=35.0:S%= 2.00]

*
 * ADD [2025+ 0814] 0801 3 5.0 20.40 3.04 12.00 65.41 n/a 0.000

*
 * READ STORM 15.0
 [Ptot= 99.43 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

*
 * CALIB NASHYD 20112 1 5.0 5.67 0.44 12.33 55.06 0.55 0.000
 [CN=79.0]
 [N = 3.0:Tp 0.48]

2021.06.28_VO Summary - SCS

READ STORM 15.0

[Ptot= 99.43 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

* CALIB STANDHYD 2026 1 5.0 4.59 1.17 12.00 81.74 0.82 0.000 [I%=35.0:S%= 2.00]

READ STORM 15.0

[Ptot= 99.43 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

* CALIB STANDHYD 2030 1 5.0 0.41 0.11 12.00 81.73 0.82 0.000 [I%=35.0:S%= 2.00]

ADD [20112+ 2026] 0811 3 5.0 10.26 1.41 12.00 67.00 n/a 0.000

ADD [0811+ 2030] 0811 1 5.0 10.67 1.52 12.00 67.56 n/a 0.000

CHANNEL[2: 0811] 0607 1 5.0 10.67 1.26 12.08 67.56 n/a 0.000

READ STORM 15.0

[Ptot= 99.43 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

* CALIB STANDHYD 2029 1 5.0 0.72 0.19 12.00 81.74 0.82 0.000 [I%=35.0:S%= 2.00]

READ STORM 15.0

[Ptot= 99.43 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

* CALIB STANDHYD 2037 1 5.0 1.44 0.40 12.00 85.14 0.86 0.000

2021.06.28_VO Summary - SCS

[I%=31.9:S%= 2.00]

* ADD [2029+ 2037] 0812 3 5.0 2.16 0.59 12.00 84.00 n/a 0.000

* ADD [0812+ 0607] 0812 1 5.0 12.83 1.74 12.00 70.33 n/a 0.000

* CHANNEL[2: 0812] 0608 1 5.0 12.83 1.49 12.17 70.31 n/a 0.000

READ STORM 15.0

[Ptot= 99.43 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

** CALIB NASHYD 2031 1 5.0 4.00 0.39 12.25 56.81 0.57 0.000 [CN=80.8] [N = 3.0:Tp 0.37]

* ADD [2031+ 0608] 0813 3 5.0 16.83 1.87 12.17 67.10 n/a 0.000

* ADD [0813+ 0801] 0813 1 5.0 37.23 4.48 12.00 66.17 n/a 0.000

* CHANNEL[2: 0813] 0609 1 5.0 37.23 4.27 12.08 66.17 n/a 0.000

READ STORM 15.0

[Ptot= 99.43 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

* CALIB STANDHYD 2023 1 5.0 12.60 2.63 12.00 74.71 0.75 0.000 [I%=35.0:S%= 2.00]

* ADD [2023+ 0609] 0815 3 5.0 49.83 6.68 12.00 68.33 n/a 0.000

* ADD [0815+ 0701] 0815 1 5.0 59.00 6.77 12.00 60.93 n/a 0.000

READ STORM 15.0

[Ptot= 99.43 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-b8bc-4507-88c5-e7

remark: SCS24H - 25yr (MTO)

2021.06.28_VO Summary - SCS

```

* CALIB NASHYD      0301  1  5.0   6.80   1.61 12.00  59.42 0.60  0.000
  [CN=91.7          ]
  [ N = 3.0:Tp 0.05]
*
* ADD [ 0301+ 0704] 0803  3  5.0  119.71   5.34 13.67  53.40 n/a  0.000
*
* ADD [ 0803+ 8031] 0803  1  5.0   312.79  14.18 12.50  49.29 n/a  0.000
*
* ADD [ 0803+ 0815] 0803  3  5.0   371.79  17.66 12.42  51.14 n/a  0.000
*
** Reservoir
OUTFLOW:           0501  1  5.0   371.79  15.08 12.75  51.08 n/a  0.000
*
READ STORM                15.0
[ Ptot= 99.43 mm ]
fname :
C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-
b8bc-4507-88c5-e7
remark: SCS24H - 25yr (MTO)
*
* CALIB NASHYD      2032  1  5.0   1.65   0.25 12.00  49.16 0.49  0.000
  [CN=76.2          ]
  [ N = 3.0:Tp 0.15]
*
* CHANNEL[ 2: 2032] 0605  1  5.0   1.65   0.17 12.17  48.97 n/a  0.000
*
READ STORM                15.0
[ Ptot= 99.43 mm ]
fname :
C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-
b8bc-4507-88c5-e7
remark: SCS24H - 25yr (MTO)
*
* CALIB NASHYD      2035  1  5.0   0.38   0.04 12.17  51.05 0.51  0.000
  [CN=76.0          ]
  [ N = 3.0:Tp 0.32]
*
READ STORM                15.0
[ Ptot= 99.43 mm ]
fname :
C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-
b8bc-4507-88c5-e7
remark: SCS24H - 25yr (MTO)

```

2021.06.28_VO Summary - SCS

```

* CALIB NASHYD      2036  1  5.0   0.42   0.08 12.00  49.14 0.49  0.000
  [CN=76.0          ]
  [ N = 3.0:Tp 0.09]
*
READ STORM                15.0
[ Ptot= 99.43 mm ]
fname :
C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-
b8bc-4507-88c5-e7
remark: SCS24H - 25yr (MTO)
*
* CALIB STANDHYD    2034  1  5.0   2.49   0.63 12.00  78.44 0.79  0.000
  [I%=43.0:S%= 2.00]
*
READ STORM                15.0
[ Ptot= 99.43 mm ]
fname :
C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\2e923112-
b8bc-4507-88c5-e7
remark: SCS24H - 25yr (MTO)
*
* CALIB STANDHYD    2033  1  5.0   3.26   0.81 12.00  77.42 0.78  0.000
  [I%=40.3:S%= 2.00]
*
* ADD [ 2033+ 2034] 0810  3  5.0   5.75   1.44 12.00  77.86 n/a  0.000
*
* ADD [ 0810+ 2035] 0810  1  5.0   6.13   1.47 12.00  76.20 n/a  0.000
*
* ADD [ 0810+ 2036] 0810  3  5.0   6.55   1.55 12.00  74.46 n/a  0.000
*
* ADD [ 0810+ 0501] 0810  1  5.0  378.34  15.25 12.67  51.48 n/a  0.000
*
* ADD [ 0810+ 0605] 0810  3  5.0  379.99  15.32 12.67  51.47 n/a  0.000

```

=====

```

V V I SSSSS U U A L (v 6.1.2003)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSSS UUUU A A LLLLL

```

```

000 TTTT TTTT H H Y Y M M 000 TM
0 0 T T H H Y Y MM MM 0 0

```

2021.06.28_VO Summary - SCS

O O T T H H Y M M O O
 000 T T H H Y M M 000

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***** S U M M A R Y O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voindat

Output filename:

C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\1685e7e7-f9b8-4d5d-a1df-dc641abe69f2\sce

Summary filename:

C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\1685e7e7-f9b8-4d5d-a1df-dc641abe69f2\sce

DATE: 06-28-2021

TIME: 10:56:08

USER:

COMMENTS: _____

 ** SIMULATION : 2yr SCS (MTO) **

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
		min	ha	cms	hrs	mm		cms

START @ 0.00 hrs

READ STORM 15.0

[Ptot= 54.57 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b

remark: SCS24H - 2yr (MTO)

*
 ** CALIB NASHYD 0101 1 5.0 43.80 1.26 12.33 18.95 0.35 0.000
 [CN=77.5]
 [N = 3.0:Tp 0.41]

Block 39 (183-5908)

31

2021.06.28_VO Summary - SCS

* CHANNEL[2: 0101] 0606 1 5.0 43.80 1.23 12.42 18.95 n/a 0.000

* READ STORM 15.0

[Ptot= 54.57 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b

remark: SCS24H - 2yr (MTO)

*
 ** CALIB NASHYD 0104 1 5.0 17.70 0.25 12.50 12.37 0.23 0.000
 [CN=68.5]
 [N = 3.0:Tp 0.56]

* ADD [0104+ 0606] 0804 3 5.0 61.50 1.48 12.42 17.05 n/a 0.000

* CHANNEL[2: 0804] 0604 1 5.0 61.50 1.45 12.50 17.05 n/a 0.000

* READ STORM 15.0

[Ptot= 54.57 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b

remark: SCS24H - 2yr (MTO)

*
 ** CALIB NASHYD 0102 1 5.0 71.90 1.40 12.50 15.90 0.29 0.000
 [CN=74.2]
 [N = 3.0:Tp 0.53]

* CHANNEL[2: 0102] 0600 1 5.0 71.90 1.39 12.50 15.90 n/a 0.000

* READ STORM 15.0

[Ptot= 54.57 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b

remark: SCS24H - 2yr (MTO)

*
 ** CALIB NASHYD 0103 1 5.0 18.00 0.20 12.75 11.87 0.22 0.000
 [CN=67.1]
 [N = 3.0:Tp 0.74]

* ADD [0103+ 0600] 0805 3 5.0 89.90 1.58 12.58 15.09 n/a 0.000

* ADD [0604+ 0805] 0806 3 5.0 151.40 3.02 12.50 15.89 n/a 0.000

Block 39 (183-5908)

32

2021.06.28_VO Summary - SCS

```

* CHANNEL[ 2: 0806] 0601 1 5.0 151.40 3.02 12.50 15.89 n/a 0.000
* READ STORM 15.0
  [ Ptot= 54.57 mm ]
  fname :
C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
  remark: SCS24H - 2yr (MTO)

*
** CALIB NASHYD 2014 1 5.0 4.08 0.03 12.42 6.38 0.12 0.000
  [CN=45.3 ]
  [ N = 3.0:Tp 0.48]
*
ADD [ 2014+ 0601] 8021 3 5.0 155.48 3.05 12.50 15.64 n/a 0.000
*
READ STORM 15.0
  [ Ptot= 54.57 mm ]
  fname :
C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
  remark: SCS24H - 2yr (MTO)

*
** CALIB NASHYD 2015 1 5.0 8.13 0.13 12.58 14.25 0.26 0.000
  [CN=67.6 ]
  [ N = 3.0:Tp 0.62]
*
READ STORM 15.0
  [ Ptot= 54.57 mm ]
  fname :
C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
  remark: SCS24H - 2yr (MTO)

*
** CALIB STANDHYD 2022 1 5.0 16.01 1.07 12.00 25.33 0.46 0.000
  [I%=35.0:S%= 2.00]
*
ADD [ 2015+ 2022] 0802 3 5.0 24.14 1.11 12.00 21.60 n/a 0.000
*
ADD [ 0802+ 8021] 0802 1 5.0 179.62 3.44 12.50 16.44 n/a 0.000
*
CHANNEL[ 2: 0802] 0602 1 5.0 179.62 3.43 12.50 16.44 n/a 0.000
*
READ STORM 15.0
  [ Ptot= 54.57 mm ]
  
```

2021.06.28_VO Summary - SCS

```

  fname :
C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
  remark: SCS24H - 2yr (MTO)

*
** CALIB NASHYD 2016 1 5.0 9.08 0.21 12.67 23.49 0.43 0.000
  [CN=81.8 ]
  [ N = 3.0:Tp 0.75]
*
ADD [ 2016+ 0602] 0807 3 5.0 188.70 3.64 12.50 16.78 n/a 0.000
*
CHANNEL[ 2: 0807] 0603 1 5.0 188.70 3.62 12.58 16.78 n/a 0.000
*
READ STORM 15.0
  [ Ptot= 54.57 mm ]
  fname :
C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
  remark: SCS24H - 2yr (MTO)

*
** CALIB NASHYD 2017 1 5.0 4.38 0.09 12.67 20.23 0.37 0.000
  [CN=78.4 ]
  [ N = 3.0:Tp 0.72]
*
ADD [ 2017+ 0603] 8031 3 5.0 193.08 3.71 12.58 16.86 n/a 0.000
*
READ STORM 15.0
  [ Ptot= 54.57 mm ]
  fname :
C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
  remark: SCS24H - 2yr (MTO)

*
** CALIB NASHYD 0106 1 5.0 74.80 1.60 12.50 17.83 0.33 0.000
  [CN=76.8 ]
  [ N = 3.0:Tp 0.56]
*
SHIFT[ 2: 0106] 0906 1 5.0 74.80 1.60 13.67 17.83 n/a 0.000
  [SHIFT= 72.7 min]
*
READ STORM 15.0
  [ Ptot= 54.57 mm ]
  fname :
C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
  
```

2021.06.28_VO Summary - SCS
remark: SCS24H - 2yr (MTO)

```
*
** CALIB NASHYD      0105  1  5.0  27.40  0.74 12.33 19.11 0.35  0.000
   [CN=79.1          ]
   [ N = 3.0:Tp 0.45]
*
* ADD [ 0105+ 0906] 0808  3  5.0 102.20  1.78 13.67 18.18 n/a  0.000
*
* PIPE [ 2: 0808] 0702  1  5.0 102.20  1.78 13.67 18.18 n/a  0.000
*
* READ STORM          15.0
  [ Ptot= 54.57 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
remark: SCS24H - 2yr (MTO)

*
* CALIB STANDHYD    2024  1  5.0  10.71  1.00 12.00 35.04 0.64  0.000
  [I%=35.0:S%= 2.00]
*
* ADD [ 2024+ 0702] 0809  3  5.0 112.91  1.85 13.67 19.78 n/a  0.000
*
* PIPE [ 2: 0809] 0703  1  5.0 112.91  1.85 13.67 19.78 n/a  0.000
*
* PIPE [ 2: 0703] 0704  1  5.0 112.91  1.83 13.75 19.78 n/a  0.000
*
* READ STORM          15.0
  [ Ptot= 54.57 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
remark: SCS24H - 2yr (MTO)

*
* CALIB NASHYD      2018  1  5.0  9.17  0.07 12.42  6.20 0.11  0.000
  [CN=43.9          ]
  [ N = 3.0:Tp 0.47]
*
* PIPE [ 2: 2018] 0701  1  5.0  9.17  0.07 12.42  6.20 n/a  0.000
*
* READ STORM          15.0
  [ Ptot= 54.57 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
remark: SCS24H - 2yr (MTO)
```

Block 39 (183-5908)

35

2021.06.28_VO Summary - SCS

```
*
* CALIB NASHYD      2012  1  5.0  8.21  0.14 12.58 16.17 0.30  0.000
  [CN=72.5          ]
  [ N = 3.0:Tp 0.66]
*
* READ STORM          15.0
  [ Ptot= 54.57 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
remark: SCS24H - 2yr (MTO)

*
* CALIB STANDHYD    2028  1  5.0  6.70  0.72 12.00 39.85 0.73  0.000
  [I%=35.0:S%= 2.00]
*
* ADD [ 2012+ 2028] 0814  3  5.0 14.91  0.77 12.00 26.81 n/a  0.000
*
* READ STORM          15.0
  [ Ptot= 54.57 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
remark: SCS24H - 2yr (MTO)

*
* CALIB STANDHYD    2025  1  5.0  5.49  0.53 12.00 35.04 0.64  0.000
  [I%=35.0:S%= 2.00]
*
* ADD [ 2025+ 0814] 0801  3  5.0 20.40  1.29 12.00 29.02 n/a  0.000
*
* READ STORM          15.0
  [ Ptot= 54.57 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
remark: SCS24H - 2yr (MTO)

*
* CALIB NASHYD      20112  1  5.0  5.67  0.16 12.33 20.98 0.38  0.000
  [CN=79.0          ]
  [ N = 3.0:Tp 0.48]
*
* READ STORM          15.0
  [ Ptot= 54.57 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-
```

Block 39 (183-5908)

36

2021.06.28_VO Summary - SCS

767e-4f62-8b37-5b

remark: SCS24H - 2yr (MTO)

*
 * CALIB STANDHYD 2026 1 5.0 4.59 0.50 12.00 39.85 0.73 0.000
 [I%=35.0:S%= 2.00]

*
 * READ STORM 15.0
 [Ptot= 54.57 mm]
 fname :

C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b

remark: SCS24H - 2yr (MTO)

*
 * CALIB STANDHYD 2030 1 5.0 0.41 0.05 12.00 39.84 0.73 0.000
 [I%=35.0:S%= 2.00]

*
 * ADD [20112+ 2026] 0811 3 5.0 10.26 0.58 12.00 29.42 n/a 0.000

*
 * ADD [0811+ 2030] 0811 1 5.0 10.67 0.63 12.00 29.82 n/a 0.000

*
 * CHANNEL[2: 0811] 0607 1 5.0 10.67 0.54 12.08 29.82 n/a 0.000

*
 * READ STORM 15.0
 [Ptot= 54.57 mm]
 fname :

C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b

remark: SCS24H - 2yr (MTO)

*
 * CALIB STANDHYD 2029 1 5.0 0.72 0.08 12.00 39.84 0.73 0.000
 [I%=35.0:S%= 2.00]

*
 * READ STORM 15.0
 [Ptot= 54.57 mm]
 fname :

C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b

remark: SCS24H - 2yr (MTO)

*
 * CALIB STANDHYD 2037 1 5.0 1.44 0.17 12.00 42.19 0.77 0.000
 [I%=31.9:S%= 2.00]

*
 * ADD [2029+ 2037] 0812 3 5.0 2.16 0.25 12.00 41.40 n/a 0.000

Block 39 (183-5908)

2021.06.28_VO Summary - SCS

ADD [0812+ 0607] 0812 1 5.0 12.83 0.75 12.00 31.77 n/a 0.000

*
 * CHANNEL[2: 0812] 0608 1 5.0 12.83 0.67 12.17 31.75 n/a 0.000

*
 * READ STORM 15.0
 [Ptot= 54.57 mm]
 fname :

C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b

remark: SCS24H - 2yr (MTO)

*
 * CALIB NASHYD 2031 1 5.0 4.00 0.14 12.25 21.69 0.40 0.000
 [CN=80.8]
 [N = 3.0:Tp 0.37]

*
 * ADD [2031+ 0608] 0813 3 5.0 16.83 0.81 12.17 29.36 n/a 0.000

*
 * ADD [0813+ 0801] 0813 1 5.0 37.23 1.91 12.00 29.18 n/a 0.000

*
 * CHANNEL[2: 0813] 0609 1 5.0 37.23 1.82 12.08 29.18 n/a 0.000

*
 * READ STORM 15.0
 [Ptot= 54.57 mm]
 fname :

C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b

remark: SCS24H - 2yr (MTO)

*
 * CALIB STANDHYD 2023 1 5.0 12.60 1.07 12.00 35.04 0.64 0.000
 [I%=35.0:S%= 2.00]

*
 * ADD [2023+ 0609] 0815 3 5.0 49.83 2.71 12.00 30.66 n/a 0.000

*
 * ADD [0815+ 0701] 0815 1 5.0 59.00 2.73 12.00 26.86 n/a 0.000

*
 * READ STORM 15.0
 [Ptot= 54.57 mm]
 fname :

C:\Users\zho1land\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b

remark: SCS24H - 2yr (MTO)

*
 * CALIB NASHYD 0301 1 5.0 6.80 0.78 12.00 27.22 0.50 0.000
 [CN=91.7]
 [N = 3.0:Tp 0.05]

Block 39 (183-5908)

2021.06.28_VO Summary - SCS

```
*
* ADD [ 0301+ 0704] 0803 3 5.0 119.71 1.86 13.75 20.20 n/a 0.000
*
* ADD [ 0803+ 8031] 0803 1 5.0 312.79 4.85 12.50 18.13 n/a 0.000
*
* ADD [ 0803+ 0815] 0803 3 5.0 371.79 6.32 12.42 19.52 n/a 0.000
*
```

```
** Reservoir
* OUTFLOW: 0501 1 5.0 371.79 2.67 14.17 19.46 n/a 0.000
```

```
READ STORM 15.0
[ Ptot= 54.57 mm ]
fname :
```

```
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
remark: SCS24H - 2yr (MTO)
```

```
*
* CALIB NASHYD 2032 1 5.0 1.65 0.09 12.00 17.50 0.32 0.000
[CN=76.2 ]
[ N = 3.0:Tp 0.15]
```

```
* CHANNEL[ 2: 2032] 0605 1 5.0 1.65 0.05 12.17 17.31 n/a 0.000
```

```
READ STORM 15.0
[ Ptot= 54.57 mm ]
fname :
```

```
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
remark: SCS24H - 2yr (MTO)
```

```
*
* CALIB NASHYD 2035 1 5.0 0.38 0.01 12.17 18.93 0.35 0.000
[CN=76.0 ]
[ N = 3.0:Tp 0.32]
```

```
READ STORM 15.0
[ Ptot= 54.57 mm ]
fname :
```

```
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
remark: SCS24H - 2yr (MTO)
```

```
*
* CALIB NASHYD 2036 1 5.0 0.42 0.03 12.00 18.22 0.33 0.000
[CN=76.0 ]
[ N = 3.0:Tp 0.09]
```

2021.06.28_VO Summary - SCS

```
READ STORM 15.0
[ Ptot= 54.57 mm ]
fname :
```

```
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
remark: SCS24H - 2yr (MTO)
```

```
*
* CALIB STANDHYD 2034 1 5.0 2.49 0.28 12.00 37.82 0.69 0.000
[I%=43.0:S%= 2.00]
```

```
READ STORM 15.0
[ Ptot= 54.57 mm ]
fname :
```

```
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4ff431aa-767e-4f62-8b37-5b
remark: SCS24H - 2yr (MTO)
```

```
*
* CALIB STANDHYD 2033 1 5.0 3.26 0.35 12.00 37.03 0.68 0.000
[I%=40.3:S%= 2.00]
```

```
* ADD [ 2033+ 2034] 0810 3 5.0 5.75 0.62 12.00 37.37 n/a 0.000
```

```
* ADD [ 0810+ 2035] 0810 1 5.0 6.13 0.63 12.00 36.23 n/a 0.000
```

```
* ADD [ 0810+ 2036] 0810 3 5.0 6.55 0.66 12.00 35.08 n/a 0.000
```

```
* ADD [ 0810+ 0501] 0810 1 5.0 378.34 2.70 14.17 19.73 n/a 0.000
```

```
* ADD [ 0810+ 0605] 0810 3 5.0 379.99 2.71 14.17 19.72 n/a 0.000
```

```
=====
=====
```

```
V V I SSSSS U U A L (v 6.1.2003)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL
```

```
000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000
```

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2021.06.28_VO Summary - SCS
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***** S U M M A R Y O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat

Output filename:
C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\32e01319-4def-42a6-8cac-57d863183ae9\sce
Summary filename:
C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\32e01319-4def-42a6-8cac-57d863183ae9\sce

DATE: 06-28-2021 TIME: 10:56:09

USER:

COMMENTS: _____

** SIMULATION : 50yr SCS (MTO) **

W/E COMMAND	HYD ID	DT	AREA	Qpeak	Tpeak	R.V.	R.C.	Qbase
	min	ha	'	' cms	hrs	mm		cms

START @ 0.00 hrs

READ STORM 15.0
[Ptot=110.56 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37
remark: SCS24H - 50yr (MTO)

*
** CALIB NASHYD 0101 1 5.0 43.80 4.22 12.25 60.86 0.55 0.000
[CN=77.5]
[N = 3.0:Tp 0.41]
*
CHANNEL[2: 0101] 0606 1 5.0 43.80 4.20 12.33 60.86 n/a 0.000
*
READ STORM 15.0

Block 39 (183-5908)

41

2021.06.28_VO Summary - SCS
[Ptot=110.56 mm]

fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37
remark: SCS24H - 50yr (MTO)

*
** CALIB NASHYD 0104 1 5.0 17.70 1.02 12.50 46.63 0.42 0.000
[CN=68.5]
[N = 3.0:Tp 0.56]

*
ADD [0104+ 0606] 0804 3 5.0 61.50 5.18 12.33 56.77 n/a 0.000
*
CHANNEL[2: 0804] 0604 1 5.0 61.50 5.14 12.42 56.76 n/a 0.000
*

READ STORM 15.0
[Ptot=110.56 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37
remark: SCS24H - 50yr (MTO)

*
** CALIB NASHYD 0102 1 5.0 71.90 5.15 12.42 54.83 0.50 0.000
[CN=74.2]
[N = 3.0:Tp 0.53]

*
CHANNEL[2: 0102] 0600 1 5.0 71.90 5.12 12.50 54.83 n/a 0.000
*
READ STORM 15.0
[Ptot=110.56 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37
remark: SCS24H - 50yr (MTO)

*
** CALIB NASHYD 0103 1 5.0 18.00 0.81 12.67 45.12 0.41 0.000
[CN=67.1]
[N = 3.0:Tp 0.74]

*
ADD [0103+ 0600] 0805 3 5.0 89.90 5.90 12.50 52.88 n/a 0.000
*
ADD [0604+ 0805] 0806 3 5.0 151.40 10.96 12.42 54.46 n/a 0.000
*

CHANNEL[2: 0806] 0601 1 5.0 151.40 10.95 12.50 54.46 n/a 0.000
*
READ STORM 15.0

Block 39 (183-5908)

42

2021.06.28_VO Summary - SCS

[Ptot=110.56 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

*
 ** CALIB NASHYD 2014 1 5.0 4.08 0.14 12.42 26.12 0.24 0.000
 [CN=45.3]
 [N = 3.0:Tp 0.48]

*
 ADD [2014+ 0601] 8021 3 5.0 155.48 11.09 12.50 53.72 n/a 0.000

READ STORM 15.0

[Ptot=110.56 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

*
 ** CALIB NASHYD 2015 1 5.0 8.13 0.45 12.50 48.88 0.44 0.000
 [CN=67.6]
 [N = 3.0:Tp 0.62]

*
 READ STORM 15.0

[Ptot=110.56 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

*
 * CALIB STANDHYD 2022 1 5.0 16.01 2.81 12.00 62.22 0.56 0.000
 [I%=35.0:S%= 2.00]

*
 ADD [2015+ 2022] 0802 3 5.0 24.14 3.00 12.00 57.73 n/a 0.000

*
 ADD [0802+ 8021] 0802 1 5.0 179.62 12.20 12.42 54.26 n/a 0.000

*
 CHANNEL[2: 0802] 0602 1 5.0 179.62 12.22 12.42 54.26 n/a 0.000

*
 READ STORM 15.0

[Ptot=110.56 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

2021.06.28_VO Summary - SCS

*
 * CALIB NASHYD 2016 1 5.0 9.08 0.64 12.67 69.14 0.63 0.000
 [CN=81.8]
 [N = 3.0:Tp 0.75]

*
 ADD [2016+ 0602] 0807 3 5.0 188.70 12.81 12.42 54.97 n/a 0.000

*
 CHANNEL[2: 0807] 0603 1 5.0 188.70 12.83 12.50 54.97 n/a 0.000

*
 READ STORM 15.0

[Ptot=110.56 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

*
 * CALIB NASHYD 2017 1 5.0 4.38 0.29 12.67 63.05 0.57 0.000
 [CN=78.4]
 [N = 3.0:Tp 0.72]

*
 ADD [2017+ 0603] 8031 3 5.0 193.08 13.11 12.50 55.15 n/a 0.000

*
 READ STORM 15.0

[Ptot=110.56 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

*
 * CALIB NASHYD 0106 1 5.0 74.80 5.56 12.42 58.99 0.53 0.000
 [CN=76.8]
 [N = 3.0:Tp 0.56]

*
 SHIFT[2: 0106] 0906 1 5.0 74.80 5.56 13.58 58.99 n/a 0.000
 [SHIFT= 72.7 min]

*
 READ STORM 15.0

[Ptot=110.56 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

*
 * CALIB NASHYD 0105 1 5.0 27.40 2.54 12.33 62.04 0.56 0.000

2021.06.28_VO Summary - SCS

[CN=79.1]
[N = 3.0:Tp 0.45]

* ADD [0105+ 0906] 0808 3 5.0 102.20 6.12 13.58 59.81 n/a 0.000

* PIPE [2: 0808] 0702 1 5.0 102.20 6.11 13.58 59.81 n/a 0.000

* READ STORM 15.0

[Ptot=110.56 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

* CALIB STANDHYD 2024 1 5.0 10.71 2.59 12.00 85.00 0.77 0.000

[I%=35.0:S%= 2.00]

* ADD [2024+ 0702] 0809 3 5.0 112.91 6.26 13.58 62.20 n/a 0.000

* PIPE [2: 0809] 0703 1 5.0 112.91 6.25 13.58 62.20 n/a 0.000

* PIPE [2: 0703] 0704 1 5.0 112.91 6.24 13.67 62.20 n/a 0.000

* READ STORM 15.0

[Ptot=110.56 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

* CALIB NASHYD 2018 1 5.0 9.17 0.31 12.33 25.26 0.23 0.000

[CN=43.9]
[N = 3.0:Tp 0.47]

* PIPE [2: 2018] 0701 1 5.0 9.17 0.31 12.42 25.26 n/a 0.000

* READ STORM 15.0

[Ptot=110.56 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

* CALIB NASHYD 2012 1 5.0 8.21 0.49 12.58 54.26 0.49 0.000

[CN=72.5]

2021.06.28_VO Summary - SCS

[N = 3.0:Tp 0.66]

* READ STORM 15.0

[Ptot=110.56 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

* CALIB STANDHYD 2028 1 5.0 6.70 1.93 12.00 92.42 0.84 0.000

[I%=35.0:S%= 2.00]

* ADD [2012+ 2028] 0814 3 5.0 14.91 2.13 12.00 71.41 n/a 0.000

* READ STORM 15.0

[Ptot=110.56 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

* CALIB STANDHYD 2025 1 5.0 5.49 1.48 12.00 85.00 0.77 0.000

[I%=35.0:S%= 2.00]

* ADD [2025+ 0814] 0801 3 5.0 20.40 3.61 12.00 75.06 n/a 0.000

* READ STORM 15.0

[Ptot=110.56 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

* CALIB NASHYD 20112 1 5.0 5.67 0.52 12.33 64.37 0.58 0.000

[CN=79.0]
[N = 3.0:Tp 0.48]

* READ STORM 15.0

[Ptot=110.56 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

* CALIB NASHYD 20112 1 5.0 5.67 0.52 12.33 64.37 0.58 0.000

[CN=79.0]
[N = 3.0:Tp 0.48]

* READ STORM 15.0

[Ptot=110.56 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

```

2021.06.28_VO Summary - SCS
* CALIB STANDHYD      2026  1  5.0   4.59   1.34 12.00  92.42 0.84   0.000
  [ I%=35.0:S%= 2.00 ]
*
  READ STORM              15.0
  [ Ptot=110.56 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-
1a7f-4168-b38e-37
  remark: SCS24H - 50yr (MTO)
*
* CALIB STANDHYD      2030  1  5.0   0.41   0.12 12.00  92.41 0.84   0.000
  [ I%=35.0:S%= 2.00 ]
*
  ADD [ 20112+ 2026] 0811  3  5.0  10.26   1.62 12.00  76.92 n/a   0.000
*
  ADD [ 0811+ 2030] 0811  1  5.0  10.67   1.75 12.00  77.51 n/a   0.000
*
  CHANNEL[ 2: 0811] 0607  1  5.0  10.67   1.42 12.08  77.51 n/a   0.000
*
  READ STORM              15.0
  [ Ptot=110.56 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-
1a7f-4168-b38e-37
  remark: SCS24H - 50yr (MTO)
*
* CALIB STANDHYD      2029  1  5.0   0.72   0.22 12.00  92.41 0.84   0.000
  [ I%=35.0:S%= 2.00 ]
*
  READ STORM              15.0
  [ Ptot=110.56 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-
1a7f-4168-b38e-37
  remark: SCS24H - 50yr (MTO)
*
* CALIB STANDHYD      2037  1  5.0   1.44   0.45 12.00  95.98 0.87   0.000
  [ I%=31.9:S%= 2.00 ]
*
  ADD [ 2029+ 2037] 0812  3  5.0   2.16   0.67 12.00  94.79 n/a   0.000
*
  ADD [ 0812+ 0607] 0812  1  5.0  12.83   1.96 12.00  80.42 n/a   0.000
*
  CHANNEL[ 2: 0812] 0608  1  5.0  12.83   1.64 12.17  80.40 n/a   0.000
*
Block 39 (183-5908)

```

```

2021.06.28_VO Summary - SCS
  READ STORM              15.0
  [ Ptot=110.56 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-
1a7f-4168-b38e-37
  remark: SCS24H - 50yr (MTO)
*
** CALIB NASHYD        2031  1  5.0   4.00   0.46 12.25  66.33 0.60   0.000
  [ CN=80.8           ]
  [ N = 3.0:Tp 0.37 ]
*
  ADD [ 2031+ 0608] 0813  3  5.0  16.83   2.08 12.17  77.06 n/a   0.000
*
  ADD [ 0813+ 0801] 0813  1  5.0  37.23   5.21 12.00  75.97 n/a   0.000
*
  CHANNEL[ 2: 0813] 0609  1  5.0  37.23   4.91 12.08  75.97 n/a   0.000
*
  READ STORM              15.0
  [ Ptot=110.56 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-
1a7f-4168-b38e-37
  remark: SCS24H - 50yr (MTO)
*
* CALIB STANDHYD        2023  1  5.0  12.60   3.03 12.00  85.00 0.77   0.000
  [ I%=35.0:S%= 2.00 ]
*
  ADD [ 2023+ 0609] 0815  3  5.0  49.83   7.79 12.00  78.25 n/a   0.000
*
  ADD [ 0815+ 0701] 0815  1  5.0  59.00   7.91 12.00  70.01 n/a   0.000
*
  READ STORM              15.0
  [ Ptot=110.56 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-
1a7f-4168-b38e-37
  remark: SCS24H - 50yr (MTO)
*
* CALIB NASHYD        0301  1  5.0   6.80   1.81 12.00  67.62 0.61   0.000
  [ CN=91.7           ]
  [ N = 3.0:Tp 0.05 ]
*
  ADD [ 0301+ 0704] 0803  3  5.0 119.71   6.31 13.67  62.51 n/a   0.000
*
  ADD [ 0803+ 8031] 0803  1  5.0 312.79  16.80 12.50  57.97 n/a   0.000
*
Block 39 (183-5908)

```

2021.06.28_VO Summary - SCS

* ADD [0803+ 0815] 0803 3 5.0 371.79 20.78 12.42 59.88 n/a 0.000

** Reservoir

* OUTFLOW: 0501 1 5.0 371.79 19.08 12.58 59.82 n/a 0.000

* READ STORM 15.0

[Ptot=110.56 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

* CALIB NASHYD 2032 1 5.0 1.65 0.30 12.00 57.99 0.52 0.000

[CN=76.2]

[N = 3.0:Tp 0.15]

* CHANNEL[2: 2032] 0605 1 5.0 1.65 0.21 12.17 57.80 n/a 0.000

* READ STORM 15.0

[Ptot=110.56 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

* CALIB NASHYD 2035 1 5.0 0.38 0.04 12.17 59.96 0.54 0.000

[CN=76.0]

[N = 3.0:Tp 0.32]

* READ STORM 15.0

[Ptot=110.56 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

* CALIB NASHYD 2036 1 5.0 0.42 0.10 12.00 57.72 0.52 0.000

[CN=76.0]

[N = 3.0:Tp 0.09]

* READ STORM 15.0

[Ptot=110.56 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

Block 39 (183-5908)

2021.06.28_VO Summary - SCS

1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

*

* CALIB STANDHYD 2034 1 5.0 2.49 0.72 12.00 88.89 0.80 0.000

[I%=43.0:S%= 2.00]

* READ STORM 15.0

[Ptot=110.56 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\4acf6111-1a7f-4168-b38e-37

remark: SCS24H - 50yr (MTO)

* CALIB STANDHYD 2033 1 5.0 3.26 0.93 12.00 87.83 0.79 0.000

[I%=40.3:S%= 2.00]

* ADD [2033+ 2034] 0810 3 5.0 5.75 1.65 12.00 88.29 n/a 0.000

* ADD [0810+ 2035] 0810 1 5.0 6.13 1.68 12.00 86.53 n/a 0.000

* ADD [0810+ 2036] 0810 3 5.0 6.55 1.78 12.00 84.68 n/a 0.000

* ADD [0810+ 0501] 0810 1 5.0 378.34 19.31 12.58 60.25 n/a 0.000

* ADD [0810+ 0605] 0810 3 5.0 379.99 19.40 12.58 60.24 n/a 0.000

=====

V V I SSSSS U U A L (v 6.1.2003)

V V I SS U U A A L

V V I SS U U A A A A L

V V I SS U U A A L

VV I SSSSS UUUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM

0 0 T T H H Y Y MM MM 0 0

0 0 T T H H Y M M 0 0

000 T T H H Y M M 000

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***** S U M M A R Y O U T P U T *****

Block 39 (183-5908)

2021.06.28_VO Summary - SCS

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voind.dat

Output filename:
C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\5ed314a5-fd86-4dd0-9d82-afcffb1ef03a\sce
Summary filename:
C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\5ed314a5-fd86-4dd0-9d82-afcffb1ef03a\sce

DATE: 06-28-2021 TIME: 10:56:10

USER:

COMMENTS: _____

** SIMULATION : 5yr SCS (MTO) **

W/E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase
min ha ' cms hrs mm cms

START @ 0.00 hrs

READ STORM 15.0
[Ptot= 72.67 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49
remark: SCS24H - 5yr (MTO)

*
** CALIB NASHYD 0101 1 5.0 43.80 2.12 12.25 31.27 0.43 0.000
[CN=77.5]
[N = 3.0:Tp 0.41]
*
CHANNEL[2: 0101] 0606 1 5.0 43.80 2.10 12.33 31.27 n/a 0.000
*
READ STORM 15.0
[Ptot= 72.67 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49

Block 39 (183-5908)

51

2021.06.28_VO Summary - SCS
remark: SCS24H - 5yr (MTO)

*
** CALIB NASHYD 0104 1 5.0 17.70 0.46 12.50 21.96 0.30 0.000
[CN=68.5]
[N = 3.0:Tp 0.56]
*
ADD [0104+ 0606] 0804 3 5.0 61.50 2.54 12.33 28.59 n/a 0.000
*
CHANNEL[2: 0804] 0604 1 5.0 61.50 2.52 12.42 28.58 n/a 0.000
*
READ STORM 15.0
[Ptot= 72.67 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49
remark: SCS24H - 5yr (MTO)

*
** CALIB NASHYD 0102 1 5.0 71.90 2.48 12.42 27.11 0.37 0.000
[CN=74.2]
[N = 3.0:Tp 0.53]
*
CHANNEL[2: 0102] 0600 1 5.0 71.90 2.46 12.50 27.11 n/a 0.000
*
READ STORM 15.0
[Ptot= 72.67 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49
remark: SCS24H - 5yr (MTO)

*
** CALIB NASHYD 0103 1 5.0 18.00 0.37 12.67 21.13 0.29 0.000
[CN=67.1]
[N = 3.0:Tp 0.74]
*
ADD [0103+ 0600] 0805 3 5.0 89.90 2.81 12.50 25.92 n/a 0.000
*
ADD [0604+ 0805] 0806 3 5.0 151.40 5.31 12.50 27.00 n/a 0.000
*
CHANNEL[2: 0806] 0601 1 5.0 151.40 5.32 12.50 27.00 n/a 0.000
*
READ STORM 15.0
[Ptot= 72.67 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49

Block 39 (183-5908)

52

2021.06.28_VO Summary - SCS
remark: SCS24H - 5yr (MTO)

*
** CALIB NASHYD 2014 1 5.0 4.08 0.06 12.42 11.57 0.16 0.000
[CN=45.3]
[N = 3.0:Tp 0.48]

*
* ADD [2014+ 0601] 8021 3 5.0 155.48 5.38 12.50 26.59 n/a 0.000

*
* READ STORM 15.0
[Ptot= 72.67 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49
remark: SCS24H - 5yr (MTO)

*
** CALIB NASHYD 2015 1 5.0 8.13 0.22 12.58 24.06 0.33 0.000
[CN=67.6]
[N = 3.0:Tp 0.62]

*
* READ STORM 15.0
[Ptot= 72.67 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49
remark: SCS24H - 5yr (MTO)

*
** CALIB STANDHYD 2022 1 5.0 16.01 1.55 12.00 36.39 0.50 0.000
[I%=35.0:S%= 2.00]

*
* ADD [2015+ 2022] 0802 3 5.0 24.14 1.63 12.00 32.24 n/a 0.000

*
* ADD [0802+ 8021] 0802 1 5.0 179.62 5.97 12.50 27.35 n/a 0.000

*
* CHANNEL[2: 0802] 0602 1 5.0 179.62 5.97 12.50 27.35 n/a 0.000

*
* READ STORM 15.0
[Ptot= 72.67 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49
remark: SCS24H - 5yr (MTO)

*
** CALIB NASHYD 2016 1 5.0 9.08 0.34 12.67 37.23 0.51 0.000
[CN=81.8]

Block 39 (183-5908)

53

2021.06.28_VO Summary - SCS
[N = 3.0:Tp 0.75]

*
* ADD [2016+ 0602] 0807 3 5.0 188.70 6.30 12.50 27.83 n/a 0.000

*
* CHANNEL[2: 0807] 0603 1 5.0 188.70 6.27 12.50 27.83 n/a 0.000

*
* READ STORM 15.0
[Ptot= 72.67 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49
remark: SCS24H - 5yr (MTO)

*
** CALIB NASHYD 2017 1 5.0 4.38 0.15 12.67 32.89 0.45 0.000
[CN=78.4]
[N = 3.0:Tp 0.72]

*
* ADD [2017+ 0603] 8031 3 5.0 193.08 6.42 12.50 27.94 n/a 0.000

*
* READ STORM 15.0
[Ptot= 72.67 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49
remark: SCS24H - 5yr (MTO)

*
** CALIB NASHYD 0106 1 5.0 74.80 2.76 12.50 29.86 0.41 0.000
[CN=76.8]
[N = 3.0:Tp 0.56]

*
* SHIFT[2: 0106] 0906 1 5.0 74.80 2.76 13.67 29.86 n/a 0.000
[SHIFT= 72.7 min]

*
* READ STORM 15.0
[Ptot= 72.67 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49
remark: SCS24H - 5yr (MTO)

*
** CALIB NASHYD 0105 1 5.0 27.40 1.27 12.33 31.77 0.44 0.000
[CN=79.1]
[N = 3.0:Tp 0.45]

*
* ADD [0105+ 0906] 0808 3 5.0 102.20 3.05 13.58 30.37 n/a 0.000

Block 39 (183-5908)

54

2021.06.28_VO Summary - SCS

```

* PIPE [ 2: 0808] 0702 1 5.0 102.20 3.04 13.67 30.37 n/a 0.000
* READ STORM 15.0
  [ Ptot= 72.67 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-
fba0-4653-98ff-49
  remark: SCS24H - 5yr (MTO)

*
* CALIB STANDHYD 2024 1 5.0 10.71 1.48 12.00 50.58 0.70 0.000
  [I%=35.0:S%= 2.00]
*
* ADD [ 2024+ 0702] 0809 3 5.0 112.91 3.13 13.58 32.29 n/a 0.000
*
* PIPE [ 2: 0809] 0703 1 5.0 112.91 3.13 13.67 32.29 n/a 0.000
*
* PIPE [ 2: 0703] 0704 1 5.0 112.91 3.12 13.67 32.29 n/a 0.000
*
* READ STORM 15.0
  [ Ptot= 72.67 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-
fba0-4653-98ff-49
  remark: SCS24H - 5yr (MTO)

*
* CALIB NASHYD 2018 1 5.0 9.17 0.13 12.42 11.20 0.15 0.000
  [CN=43.9 ]
  [ N = 3.0:Tp 0.47]
*
* PIPE [ 2: 2018] 0701 1 5.0 9.17 0.13 12.42 11.20 n/a 0.000
*
* READ STORM 15.0
  [ Ptot= 72.67 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-
fba0-4653-98ff-49
  remark: SCS24H - 5yr (MTO)

*
* CALIB NASHYD 2012 1 5.0 8.21 0.24 12.58 27.13 0.37 0.000
  [CN=72.5 ]
  [ N = 3.0:Tp 0.66]
*
* READ STORM 15.0
  [ Ptot= 72.67 mm ]

```

2021.06.28_VO Summary - SCS

```

fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-
fba0-4653-98ff-49
  remark: SCS24H - 5yr (MTO)

*
* CALIB STANDHYD 2028 1 5.0 6.70 1.05 12.00 56.45 0.78 0.000
  [I%=35.0:S%= 2.00]
*
* ADD [ 2012+ 2028] 0814 3 5.0 14.91 1.13 12.00 40.31 n/a 0.000
*
* READ STORM 15.0
  [ Ptot= 72.67 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-
fba0-4653-98ff-49
  remark: SCS24H - 5yr (MTO)

*
* CALIB STANDHYD 2025 1 5.0 5.49 0.78 12.00 50.58 0.70 0.000
  [I%=35.0:S%= 2.00]
*
* ADD [ 2025+ 0814] 0801 3 5.0 20.40 1.91 12.00 43.07 n/a 0.000
*
* READ STORM 15.0
  [ Ptot= 72.67 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-
fba0-4653-98ff-49
  remark: SCS24H - 5yr (MTO)

*
* CALIB NASHYD 20112 1 5.0 5.67 0.27 12.33 33.87 0.47 0.000
  [CN=79.0 ]
  [ N = 3.0:Tp 0.48]
*
* READ STORM 15.0
  [ Ptot= 72.67 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-
fba0-4653-98ff-49
  remark: SCS24H - 5yr (MTO)

*
* CALIB STANDHYD 2026 1 5.0 4.59 0.73 12.00 56.44 0.78 0.000
  [I%=35.0:S%= 2.00]
*
* READ STORM 15.0

```

2021.06.28_VO Summary - SCS

[Ptot= 72.67 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49

remark: SCS24H - 5yr (MTO)

*
 * CALIB STANDHYD 2030 1 5.0 0.41 0.07 12.00 56.43 0.78 0.000
 [I%=35.0:S%= 2.00]
 *
 * ADD [20112+ 2026] 0811 3 5.0 10.26 0.86 12.00 43.97 n/a 0.000
 *
 * ADD [0811+ 2030] 0811 1 5.0 10.67 0.94 12.00 44.45 n/a 0.000
 *
 * CHANNEL[2: 0811] 0607 1 5.0 10.67 0.83 12.08 44.44 n/a 0.000
 *

READ STORM 15.0

[Ptot= 72.67 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49

remark: SCS24H - 5yr (MTO)

*
 * CALIB STANDHYD 2029 1 5.0 0.72 0.13 12.00 56.44 0.78 0.000
 [I%=35.0:S%= 2.00]
 *

READ STORM 15.0

[Ptot= 72.67 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49

remark: SCS24H - 5yr (MTO)

*
 * CALIB STANDHYD 2037 1 5.0 1.44 0.27 12.00 59.30 0.82 0.000
 [I%=31.9:S%= 2.00]
 *
 * ADD [2029+ 2037] 0812 3 5.0 2.16 0.40 12.00 58.35 n/a 0.000
 *
 * ADD [0812+ 0607] 0812 1 5.0 12.83 1.16 12.00 46.78 n/a 0.000
 *
 * CHANNEL[2: 0812] 0608 1 5.0 12.83 1.05 12.17 46.77 n/a 0.000
 *

READ STORM 15.0

[Ptot= 72.67 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49

2021.06.28_VO Summary - SCS

fba0-4653-98ff-49

remark: SCS24H - 5yr (MTO)

*
 ** CALIB NASHYD 2031 1 5.0 4.00 0.24 12.25 35.03 0.48 0.000
 [CN=80.8]
 [N = 3.0:Tp 0.37]
 *
 * ADD [2031+ 0608] 0813 3 5.0 16.83 1.28 12.17 43.98 n/a 0.000
 *
 * ADD [0813+ 0801] 0813 1 5.0 37.23 2.86 12.00 43.48 n/a 0.000
 *
 * CHANNEL[2: 0813] 0609 1 5.0 37.23 2.75 12.08 43.48 n/a 0.000
 *

READ STORM 15.0

[Ptot= 72.67 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49

remark: SCS24H - 5yr (MTO)

*
 ** CALIB STANDHYD 2023 1 5.0 12.60 1.73 12.00 50.58 0.70 0.000
 [I%=35.0:S%= 2.00]
 *

ADD [2023+ 0609] 0815 3 5.0 49.83 4.24 12.00 45.27 n/a 0.000

ADD [0815+ 0701] 0815 1 5.0 59.00 4.29 12.00 39.98 n/a 0.000

READ STORM 15.0

[Ptot= 72.67 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-fba0-4653-98ff-49

remark: SCS24H - 5yr (MTO)

*
 ** CALIB NASHYD 0301 1 5.0 6.80 1.11 12.00 39.97 0.55 0.000
 [CN=91.7]
 [N = 3.0:Tp 0.05]
 *

ADD [0301+ 0704] 0803 3 5.0 119.71 3.16 13.67 32.72 n/a 0.000

ADD [0803+ 8031] 0803 1 5.0 312.79 8.35 12.50 29.77 n/a 0.000

ADD [0803+ 0815] 0803 3 5.0 371.79 10.58 12.42 31.39 n/a 0.000

** Reservoir

```

2021.06.28_VO Summary - SCS
OUTFLOW:      0501  1  5.0  371.79   6.13 13.67  31.34  n/a  0.000
*
  READ STORM              15.0
  [ Ptot= 72.67 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-
fba0-4653-98ff-49
  remark: SCS24H - 5yr (MTO)
*
** CALIB NASHYD          2032  1  5.0   1.65   0.15 12.00  29.30 0.40  0.000
  [CN=76.2          ]
  [ N = 3.0:Tp 0.15]
*
  CHANNEL[ 2: 2032] 0605  1  5.0   1.65   0.09 12.17  29.12  n/a  0.000
*
  READ STORM              15.0
  [ Ptot= 72.67 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-
fba0-4653-98ff-49
  remark: SCS24H - 5yr (MTO)
*
** CALIB NASHYD          2035  1  5.0   0.38   0.02 12.17  30.95 0.43  0.000
  [CN=76.0          ]
  [ N = 3.0:Tp 0.32]
*
  READ STORM              15.0
  [ Ptot= 72.67 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-
fba0-4653-98ff-49
  remark: SCS24H - 5yr (MTO)
*
** CALIB NASHYD          2036  1  5.0   0.42   0.05 12.00  29.79 0.41  0.000
  [CN=76.0          ]
  [ N = 3.0:Tp 0.09]
*
  READ STORM              15.0
  [ Ptot= 72.67 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-
fba0-4653-98ff-49
  remark: SCS24H - 5yr (MTO)
*

```

```

2021.06.28_VO Summary - SCS
* CALIB STANDHYD        2034  1  5.0   2.49   0.40 12.00  53.82 0.74  0.000
  [I%=43.0:S%= 2.00]
*
  READ STORM              15.0
  [ Ptot= 72.67 mm ]
  fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\47aa0107-
fba0-4653-98ff-49
  remark: SCS24H - 5yr (MTO)
*
* CALIB STANDHYD        2033  1  5.0   3.26   0.50 12.00  52.91 0.73  0.000
  [I%=40.3:S%= 2.00]
*
  ADD [ 2033+ 2034] 0810  3  5.0   5.75   0.90 12.00  53.31  n/a  0.000
*
  ADD [ 0810+ 2035] 0810  1  5.0   6.13   0.92 12.00  51.92  n/a  0.000
*
  ADD [ 0810+ 2036] 0810  3  5.0   6.55   0.97 12.00  50.50  n/a  0.000
*
  ADD [ 0810+ 0501] 0810  1  5.0  378.34   6.18 13.67  31.67  n/a  0.000
*
  ADD [ 0810+ 0605] 0810  3  5.0  379.99   6.20 13.67  31.66  n/a  0.000
*
=====
V   V   I   SSSSS  U   U   A   L           (v 6.1.2003)
V   V   I   SS    U   U   A A   L
V   V   I   SS    U   U   AAAAA L
V   V   I   SS    U   U   A   A   L
VW   I   SSSSS  UUUUU  A   A   LLLLL

000  TTTT  TTTT  H  H  Y  Y  M  M  000  TM
0  0  T  T  H  H  Y  Y  MM  MM  0  0
0  0  T  T  H  H  Y  M  M  0  0
000  T  T  H  H  Y  M  M  000

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```

***** S U M M A R Y O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voindat

2021.06.28_VO Summary - SCS

Output filename:

C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\d50
cd577-bba9-4b66-9417-90cf4c2f523d\sce

Summary filename:

C:\Users\zholland\AppData\Local\Civica\XH5\05153701-f781-47eb-ab6b-c872b39b8f82\d50
cd577-bba9-4b66-9417-90cf4c2f523d\sce

DATE: 06-28-2021

TIME: 10:56:11

USER:

COMMENTS: _____

** SIMULATION : Regional (Timmins) **

W/E COMMAND	HYD ID	DT min	AREA ha	Qpeak cms	Tpeak hrs	R.V. mm	R.C.	Qbase cms
-------------	--------	--------	---------	-----------	-----------	---------	------	-----------

START @ 0.00 hrs

READ STORM 15.0

[Ptot=193.00 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-
b8a2-4cef-96f5-0a

remark: TIMMINS

*	** CALIB NASHYD	0101	1	5.0	43.80	3.90	7.08	133.60	0.69	0.000
---	-----------------	------	---	-----	-------	------	------	--------	------	-------

[CN=77.5]

[N = 3.0:Tp 0.41]

*	CHANNEL[2: 0101]	0606	1	5.0	43.80	3.88	7.17	133.60	n/a	0.000
---	-------------------	------	---	-----	-------	------	------	--------	-----	-------

READ STORM 15.0

[Ptot=193.00 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-
b8a2-4cef-96f5-0a

remark: TIMMINS

*	** CALIB NASHYD	0104	1	5.0	17.70	1.21	7.25	111.86	0.58	0.000
---	-----------------	------	---	-----	-------	------	------	--------	------	-------

Block 39 (183-5908)

61

2021.06.28_VO Summary - SCS

[CN=68.5]

[N = 3.0:Tp 0.56]

*	ADD [0104+ 0606]	0804	3	5.0	61.50	5.08	7.17	127.34	n/a	0.000
---	-------------------	------	---	-----	-------	------	------	--------	-----	-------

*	CHANNEL[2: 0804]	0604	1	5.0	61.50	5.05	7.17	127.34	n/a	0.000
---	-------------------	------	---	-----	-------	------	------	--------	-----	-------

READ STORM 15.0

[Ptot=193.00 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-
b8a2-4cef-96f5-0a

remark: TIMMINS

*	** CALIB NASHYD	0102	1	5.0	71.90	5.60	7.17	124.88	0.65	0.000
---	-----------------	------	---	-----	-------	------	------	--------	------	-------

[CN=74.2]

[N = 3.0:Tp 0.53]

*	CHANNEL[2: 0102]	0600	1	5.0	71.90	5.58	7.25	124.88	n/a	0.000
---	-------------------	------	---	-----	-------	------	------	--------	-----	-------

READ STORM 15.0

[Ptot=193.00 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-
b8a2-4cef-96f5-0a

remark: TIMMINS

*	** CALIB NASHYD	0103	1	5.0	18.00	1.08	7.42	109.14	0.57	0.000
---	-----------------	------	---	-----	-------	------	------	--------	------	-------

[CN=67.1]

[N = 3.0:Tp 0.74]

*	ADD [0103+ 0600]	0805	3	5.0	89.90	6.63	7.25	121.73	n/a	0.000
---	-------------------	------	---	-----	-------	------	------	--------	-----	-------

*	ADD [0604+ 0805]	0806	3	5.0	151.40	11.68	7.25	124.01	n/a	0.000
---	-------------------	------	---	-----	--------	-------	------	--------	-----	-------

*	CHANNEL[2: 0806]	0601	1	5.0	151.40	11.68	7.25	124.01	n/a	0.000
---	-------------------	------	---	-----	--------	-------	------	--------	-----	-------

READ STORM 15.0

[Ptot=193.00 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-
b8a2-4cef-96f5-0a

remark: TIMMINS

*	** CALIB NASHYD	2014	1	5.0	4.08	0.17	7.17	70.19	0.36	0.000
---	-----------------	------	---	-----	------	------	------	-------	------	-------

Block 39 (183-5908)

62

2021.06.28_VO Summary - SCS

[CN=45.3]
[N = 3.0:Tp 0.48]

* ADD [2014+ 0601] 8021 3 5.0 155.48 11.86 7.25 122.59 n/a 0.000

* READ STORM 15.0
[Ptot=193.00 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a
remark: TIMMINS

** CALIB NASHYD 2015 1 5.0 8.13 0.54 7.25 113.95 0.59 0.000
[CN=67.6]
[N = 3.0:Tp 0.62]

* READ STORM 15.0
[Ptot=193.00 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a
remark: TIMMINS

** CALIB STANDHYD 2022 1 5.0 16.01 1.31 7.00 126.45 0.66 0.000
[I%=35.0:S%= 2.00]

* ADD [2015+ 2022] 0802 3 5.0 24.14 1.80 7.00 122.24 n/a 0.000

* ADD [0802+ 8021] 0802 1 5.0 179.62 13.33 7.25 122.55 n/a 0.000

* CHANNEL[2: 0802] 0602 1 5.0 179.62 13.35 7.25 122.55 n/a 0.000

* READ STORM 15.0
[Ptot=193.00 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a
remark: TIMMINS

** CALIB NASHYD 2016 1 5.0 9.08 0.71 7.42 144.97 0.75 0.000
[CN=81.8]
[N = 3.0:Tp 0.75]

* ADD [2016+ 0602] 0807 3 5.0 188.70 14.06 7.25 123.63 n/a 0.000

2021.06.28_VO Summary - SCS

CHANNEL[2: 0807] 0603 1 5.0 188.70 14.04 7.25 123.63 n/a 0.000

* READ STORM 15.0
[Ptot=193.00 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a
remark: TIMMINS

** CALIB NASHYD 2017 1 5.0 4.38 0.33 7.33 136.54 0.71 0.000
[CN=78.4]
[N = 3.0:Tp 0.72]

* ADD [2017+ 0603] 8031 3 5.0 193.08 14.36 7.25 123.92 n/a 0.000

* READ STORM 15.0
[Ptot=193.00 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a
remark: TIMMINS

** CALIB NASHYD 0106 1 5.0 74.80 5.99 7.25 131.13 0.68 0.000
[CN=76.8]
[N = 3.0:Tp 0.56]

* SHIFT[2: 0106] 0906 1 5.0 74.80 5.99 8.42 131.13 n/a 0.000
[SHIFT= 72.7 min]

* READ STORM 15.0
[Ptot=193.00 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a
remark: TIMMINS

** CALIB NASHYD 0105 1 5.0 27.40 2.43 7.08 135.81 0.70 0.000
[CN=79.1]
[N = 3.0:Tp 0.45]

* ADD [0105+ 0906] 0808 3 5.0 102.20 7.45 8.42 132.38 n/a 0.000

* PIPE [2: 0808] 0702 1 5.0 102.20 7.46 8.42 132.38 n/a 0.000

* READ STORM 15.0

2021.06.28_VO Summary - SCS

[Ptot=193.00 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a

remark: TIMMINS

*
 * CALIB STANDHYD 2024 1 5.0 10.71 1.16 7.00 163.66 0.85 0.000
 [I%=35.0:S%= 2.00]
 *
 * ADD [2024+ 0702] 0809 3 5.0 112.91 8.09 8.42 135.35 n/a 0.000
 *
 * PIPE [2: 0809] 0703 1 5.0 112.91 8.09 8.42 135.35 n/a 0.000
 *
 * PIPE [2: 0703] 0704 1 5.0 112.91 8.06 8.50 135.35 n/a 0.000
 *

READ STORM 15.0
[Ptot=193.00 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a

remark: TIMMINS

*
 * CALIB NASHYD 2018 1 5.0 9.17 0.38 7.17 68.05 0.35 0.000
 [CN=43.9]
 [N = 3.0:Tp 0.47]
 *
 * PIPE [2: 2018] 0701 1 5.0 9.17 0.38 7.25 68.05 n/a 0.000
 *

READ STORM 15.0
[Ptot=193.00 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a

remark: TIMMINS

*
 * CALIB NASHYD 2012 1 5.0 8.21 0.58 7.33 123.24 0.64 0.000
 [CN=72.5]
 [N = 3.0:Tp 0.66]
 *

READ STORM 15.0
[Ptot=193.00 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a

remark: TIMMINS

2021.06.28_VO Summary - SCS

*
 * CALIB STANDHYD 2028 1 5.0 6.70 0.76 7.00 172.90 0.90 0.000
 [I%=35.0:S%= 2.00]
 *
 * ADD [2012+ 2028] 0814 3 5.0 14.91 1.28 7.00 145.55 n/a 0.000
 *

READ STORM 15.0
[Ptot=193.00 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a

remark: TIMMINS

*
 * CALIB STANDHYD 2025 1 5.0 5.49 0.60 7.00 163.66 0.85 0.000
 [I%=35.0:S%= 2.00]
 *
 * ADD [2025+ 0814] 0801 3 5.0 20.40 1.88 7.00 150.43 n/a 0.000
 *

READ STORM 15.0
[Ptot=193.00 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a

remark: TIMMINS

*
 * CALIB NASHYD 20112 1 5.0 5.67 0.50 7.17 138.31 0.72 0.000
 [CN=79.0]
 [N = 3.0:Tp 0.48]
 *
 * READ STORM 15.0
 [Ptot=193.00 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a

remark: TIMMINS

*
 * CALIB STANDHYD 2026 1 5.0 4.59 0.52 7.00 172.90 0.90 0.000
 [I%=35.0:S%= 2.00]
 *
 * READ STORM 15.0
 [Ptot=193.00 mm]
 fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a

2021.06.28_VO Summary - SCS
remark: TIMMINS

*
* CALIB STANDHYD 2030 1 5.0 0.41 0.05 7.00 172.88 0.90 0.000
[I%=35.0:S%= 2.00]
*
* ADD [20112+ 2026] 0811 3 5.0 10.26 1.01 7.00 153.79 n/a 0.000
*
* ADD [0811+ 2030] 0811 1 5.0 10.67 1.05 7.00 154.52 n/a 0.000
*
* CHANNEL[2: 0811] 0607 1 5.0 10.67 1.03 7.00 154.51 n/a 0.000
*

READ STORM 15.0
[Ptot=193.00 mm]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a
remark: TIMMINS

*
* CALIB STANDHYD 2029 1 5.0 0.72 0.08 7.00 172.89 0.90 0.000
[I%=35.0:S%= 2.00]
*
* READ STORM 15.0
[Ptot=193.00 mm]
fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a
remark: TIMMINS

*
* CALIB STANDHYD 2037 1 5.0 1.44 0.17 7.00 177.25 0.92 0.000
[I%=31.9:S%= 2.00]
*
* ADD [2029+ 2037] 0812 3 5.0 2.16 0.25 7.00 175.80 n/a 0.000
*
* ADD [0812+ 0607] 0812 1 5.0 12.83 1.28 7.00 158.10 n/a 0.000
*
* CHANNEL[2: 0812] 0608 1 5.0 12.83 1.25 7.00 158.08 n/a 0.000
*

READ STORM 15.0
[Ptot=193.00 mm]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a
remark: TIMMINS

Block 39 (183-5908)

67

2021.06.28_VO Summary - SCS

** CALIB NASHYD 2031 1 5.0 4.00 0.38 7.08 141.40 0.73 0.000
[CN=80.8]
[N = 3.0:Tp 0.37]

*
* ADD [2031+ 0608] 0813 3 5.0 16.83 1.63 7.08 154.12 n/a 0.000
*
* ADD [0813+ 0801] 0813 1 5.0 37.23 3.50 7.00 152.09 n/a 0.000
*
* CHANNEL[2: 0813] 0609 1 5.0 37.23 3.47 7.00 152.09 n/a 0.000
*

READ STORM 15.0
[Ptot=193.00 mm]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a
remark: TIMMINS

*
* CALIB STANDHYD 2023 1 5.0 12.60 1.36 7.00 163.66 0.85 0.000
[I%=35.0:S%= 2.00]
*
* ADD [2023+ 0609] 0815 3 5.0 49.83 4.83 7.00 155.02 n/a 0.000
*
* ADD [0815+ 0701] 0815 1 5.0 59.00 5.18 7.00 141.50 n/a 0.000
*

READ STORM 15.0
[Ptot=193.00 mm]
fname :
C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a
remark: TIMMINS

*
* CALIB NASHYD 0301 1 5.0 6.80 0.60 7.00 129.32 0.67 0.000
[CN=91.7]
[N = 3.0:Tp 0.05]
*
* ADD [0301+ 0704] 0803 3 5.0 119.71 8.39 8.50 135.01 n/a 0.000
*
* ADD [0803+ 8031] 0803 1 5.0 312.79 20.12 7.25 128.16 n/a 0.000
*
* ADD [0803+ 0815] 0803 3 5.0 371.79 24.71 7.17 130.28 n/a 0.000
*

** Reservoir
OUTFLOW: 0501 1 5.0 371.79 24.52 7.25 130.23 n/a 0.000
*
* READ STORM 15.0
[Ptot=193.00 mm]

Block 39 (183-5908)

68

2021.06.28_VO Summary - SCS

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a

remark: TIMMINS

```

*
** CALIB NASHYD      2032  1  5.0   1.65   0.16  7.00 129.29 0.67  0.000
   [CN=76.2          ]
   [ N = 3.0:Tp 0.15]

```

```

* CHANNEL[ 2: 2032] 0605  1  5.0   1.65   0.15  7.00 129.09 n/a  0.000

```

```

* READ STORM          15.0

```

[Ptot=193.00 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a

remark: TIMMINS

```

*
** CALIB NASHYD      2035  1  5.0   0.38   0.03  7.00 131.74 0.68  0.000
   [CN=76.0          ]
   [ N = 3.0:Tp 0.32]

```

```

* READ STORM          15.0

```

[Ptot=193.00 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a

remark: TIMMINS

```

*
** CALIB NASHYD      2036  1  5.0   0.42   0.04  7.00 126.80 0.66  0.000
   [CN=76.0          ]
   [ N = 3.0:Tp 0.09]

```

```

* READ STORM          15.0

```

[Ptot=193.00 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a

remark: TIMMINS

```

*
* CALIB STANDHYD     2034  1  5.0   2.49   0.28  7.00 168.29 0.87  0.000
   [I%=43.0:S%= 2.00]

```

```

* READ STORM          15.0

```

Block 39 (183-5908)

2021.06.28_VO Summary - SCS

[Ptot=193.00 mm]

fname :

C:\Users\zholland\AppData\Local\Temp\97c2378f-fc0b-4134-a375-469736612190\8e42be59-b8a2-4cef-96f5-0a

remark: TIMMINS

```

*
* CALIB STANDHYD     2033  1  5.0   3.26   0.36  7.00 167.06 0.87  0.000
   [I%=40.3:S%= 2.00]

```

```

* ADD [ 2033+ 2034] 0810  3  5.0   5.75   0.64  7.00 167.59 n/a  0.000

```

```

* ADD [ 0810+ 2035] 0810  1  5.0   6.13   0.67  7.00 165.37 n/a  0.000

```

```

* ADD [ 0810+ 2036] 0810  3  5.0   6.55   0.71  7.00 162.90 n/a  0.000

```

```

* ADD [ 0810+ 0501] 0810  1  5.0  378.34  24.97  7.25 130.80 n/a  0.000

```

```

* ADD [ 0810+ 0605] 0810  3  5.0  379.99  25.10  7.25 130.79 n/a  0.000

```

FINISH

```

=====
=====

```

Block 39 (183-5908)

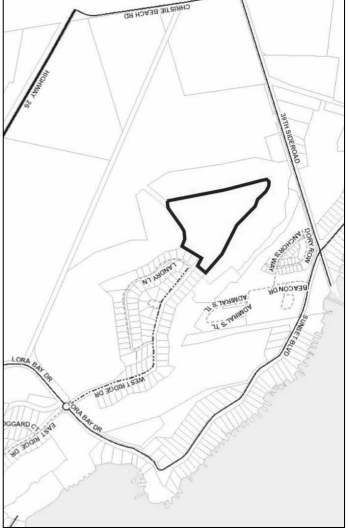
List of Figures

Site Plan	(Symbolics Architecture + Design Inc., June 25, 2021)
Figure 1:	Lora Bay Phase 4 & Block 39 Water Model Schematic
Figure 2:	Original Ultimate Drainage Conditions – Lora Bay
Figure 3:	Updated Ultimate Drainage Conditions – Lora Bay

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Do not scale the drawing. When dimensions shall have precedence.

Drawing History	Issue Name	Issue Date
No. 16	Issued by SPA	2021-06-25



KEY PLAN

SITE DATA		REQUIRED	PROPOSED
Zone R2-113-h7		650 m2	14,103.58 m2
SITE AREA			14,103.58 m2
Lot Frontage	18.0m		73.95m
BUILDING AREA			
BLOCK 1		388.98 m2	388.98 m2
BLOCK 2		481.34 m2	481.34 m2
BLOCK 3		481.34 m2	481.34 m2
BLOCK 4		388.98 m2	388.98 m2
BLOCK 5		481.34 m2	481.34 m2
BLOCK 6		481.34 m2	481.34 m2
BLOCK 7		-	481.34 m2
Total Building Area		-	3,194.62 m2
Lot Coverage	35% (Max)		22.58%
Number of Units	-		33
Proposed GFA	-		7,118.22 m2
Front Yard Setback	Block 7 7.5m (Min)		12.82m
Rear Yard Setback	Blocks 1 - 4 7.5m (Min)		8.0m
Exterior Side Yard Setback	Block 6 7.5m (Min)		12.20m
Interior Side Yard Setback	Blocks 1 - 4 4.5m (Min)		5.0m
Building Height	11.0m (Max)		11.0m
Number of Storeys	3 (Max)		3
Landscape Open Space	-		6,125.35 m2
Parking Area (Interior)	-		2,551.9 m2
Parking Area (Visitor)	-		14,224 m2
Proposed Parking Spaces			
Interior	74		66
On Driveway	8		47
Visitor	8		8
Total Proposed Parking Spaces			121



Site Plan
SCALE: 1:300



Client Address:
6720 Wellington Road 34, Pk 22, Cambridge
ON N3C 2W4



symbolics architecture + design inc.
1515 LAMBTON AVE. E. SUITE 02 TORONTO, ONT. M4A 2S1 PH: 416 888 8171

Drawing Title:
Site Plan

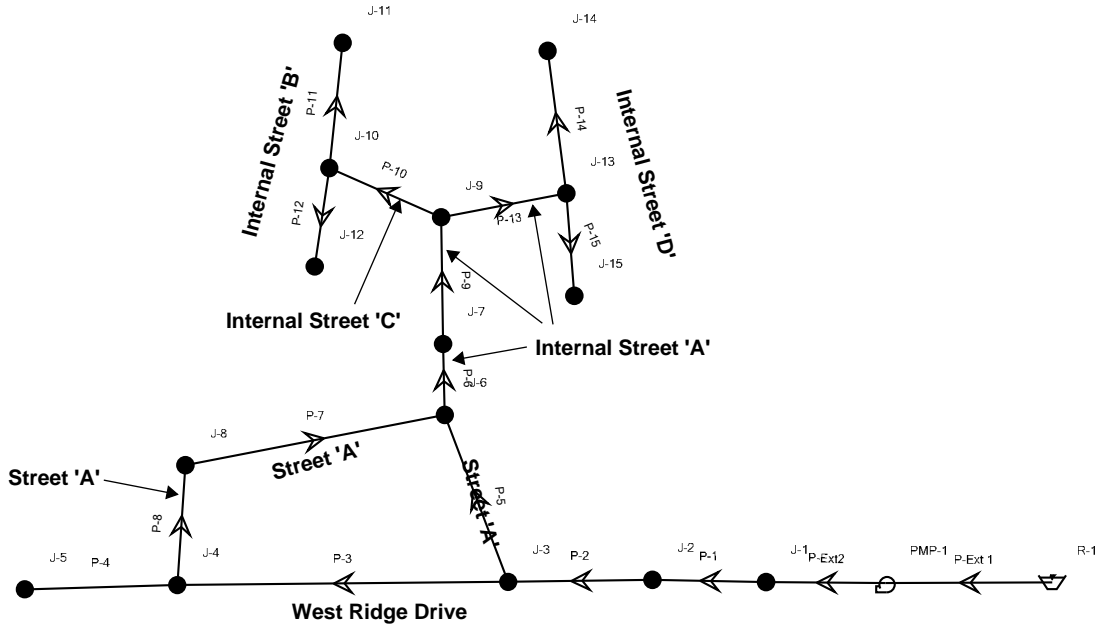
Project Status:
Site Plan Approval

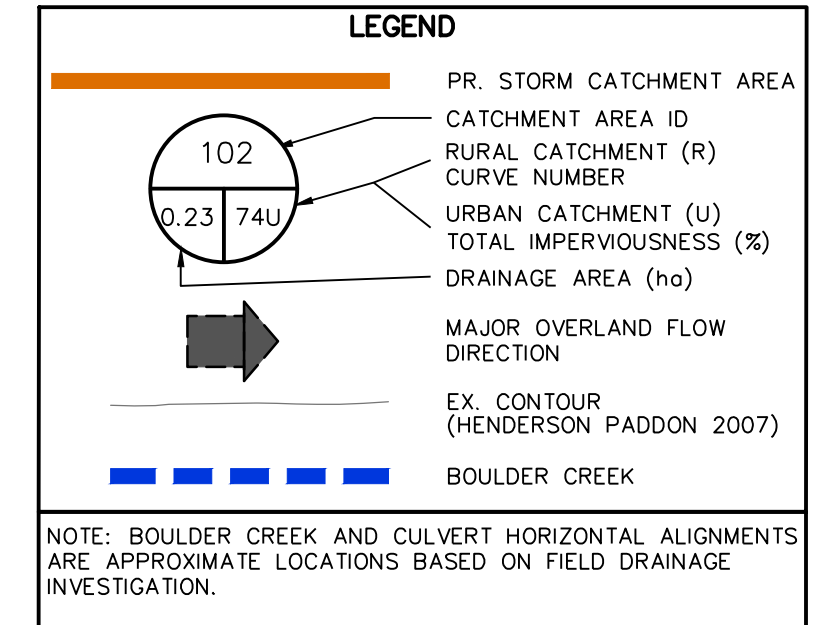
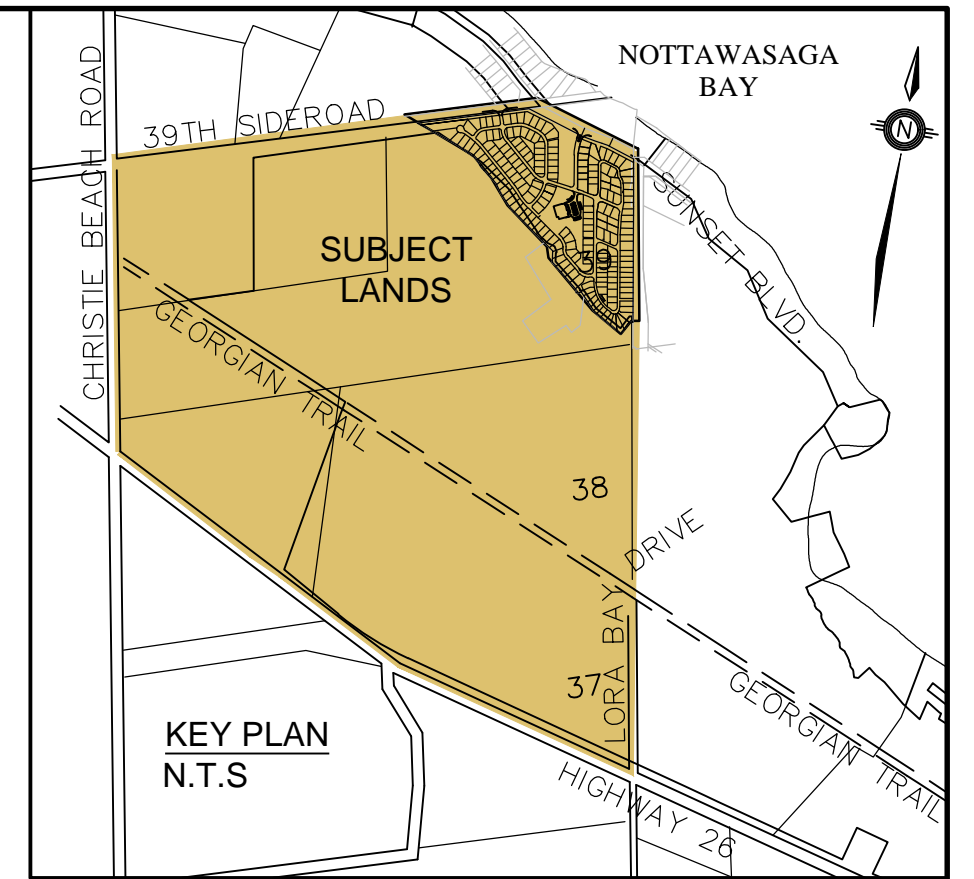
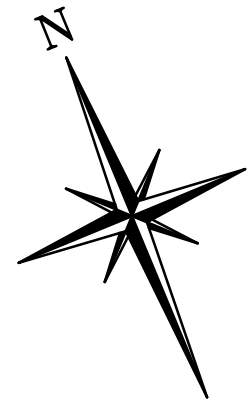
Drawn By	Checked By	Date Issued
PV	PV	2021-06-25
Scale: AS NOTED		
Project Number: LBM-001		

LOT BOUNDARY BENCHMARK SURVEY DATA AND EXISTING GRADING DATA OBTAINED FROM: VAN HARTEN SURVEYING INC. FEB. 14, 2021

PROPOSED GRADING DATA OBTAINED FROM: CORRIER CONSULTING ENGINEERS

Figure 1: Lora Bay Phase 4 & Block 39 Water Model Schematic





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TEMPORARY BENCHMARKS	
TBM#1-	
TBM#2-	
TBM#3-	

No.	ISSUE / REVISION	DATE: MM/DD/YYYY
1	ISSUED FOR FIRST SUBMISSION	06/28/2021

No.	ISSUE / REVISION	DATE: MM/DD/YYYY

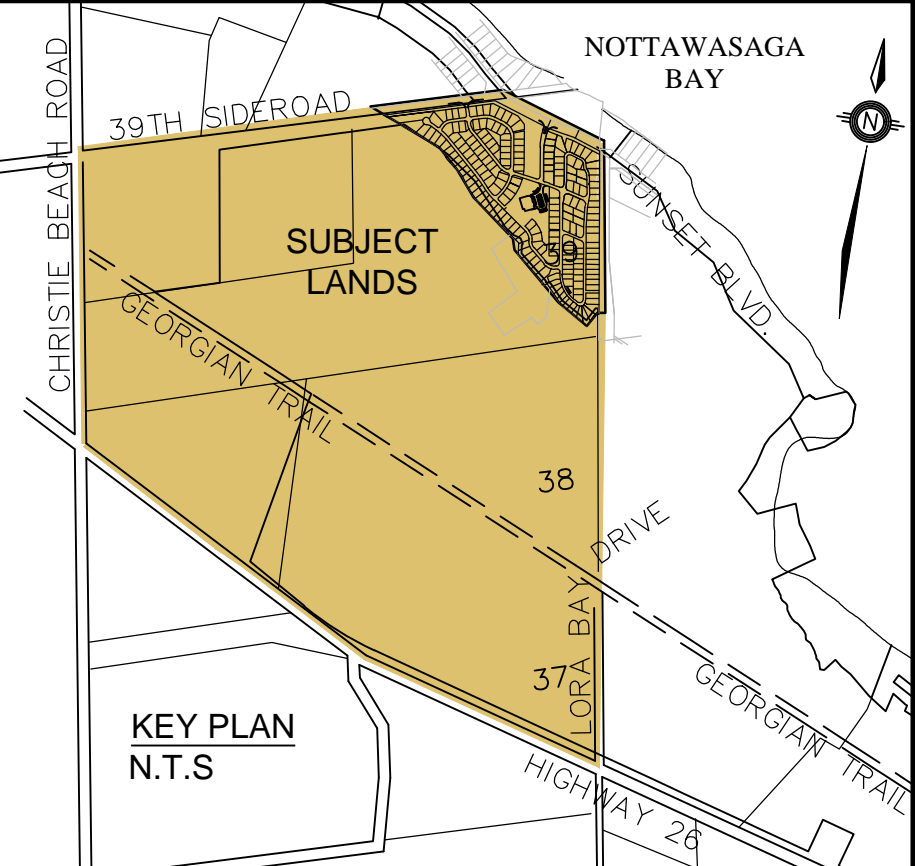
PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Project: LORA BAY PHASE 4 BLOCK 39 TOWN OF THE BLUE MOUNTAINS
 Drawing: ULTIMATE DRAINAGE CONDITIONS (ORIGINAL)

CROZIER & ASSOCIATES
Consulting Engineers

The Harbour Edge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfrozier.ca
info@cfrozier.ca

Drawn By: N.L. Design By: A.S. Project: **183-5908**
 Scale: 1:4000 Date: 11/05/2019 Check By: K.A.M. Drawing: **FIG 2**



LEGEND

- PR. STORM CATCHMENT AREA
- CATCHMENT AREA ID
- RURAL CATCHMENT (R)
CURVE NUMBER
- URBAN CATCHMENT (U)
TOTAL IMPERVIOUSNESS (%)
DRAINAGE AREA (ha)
- MAJOR OVERLAND FLOW DIRECTION
- EX. CONTOUR (HENDERSON PADDON 2007)
- BOULDER CREEK

NOTE: BOULDER CREEK AND CULVERT HORIZONTAL ALIGNMENTS ARE APPROXIMATE LOCATIONS BASED ON FIELD DRAINAGE INVESTIGATION.



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- DO NOT SCALE THE DRAWINGS.
- ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

TEMPORARY BENCHMARKS	
TBM#1-	
TBM#2-	
TBM#3-	

No.	ISSUE / REVISION	DATE: MM/DD/YYYY
1	ISSUED FOR FIRST SUBMISSION	06/28/2021

No.	ISSUE / REVISION	DATE: MM/DD/YYYY	Engineer

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

LORA BAY PHASE 4 BLOCK 39
TOWN OF THE BLUE MOUNTAINS

ULTIMATE DRAINAGE CONDITIONS
LORA BAY

The Harbour Edge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705-446-3510 T
705-446-3520 F
www.cfrozier.ca
info@cfrozier.ca

Drawn By: N.L. Design By: A.S. Project: **469-3061**

Scale: 1:4000 Date: 11/05/2019 Check By: K.A.M. Drawing: **FIG 3**

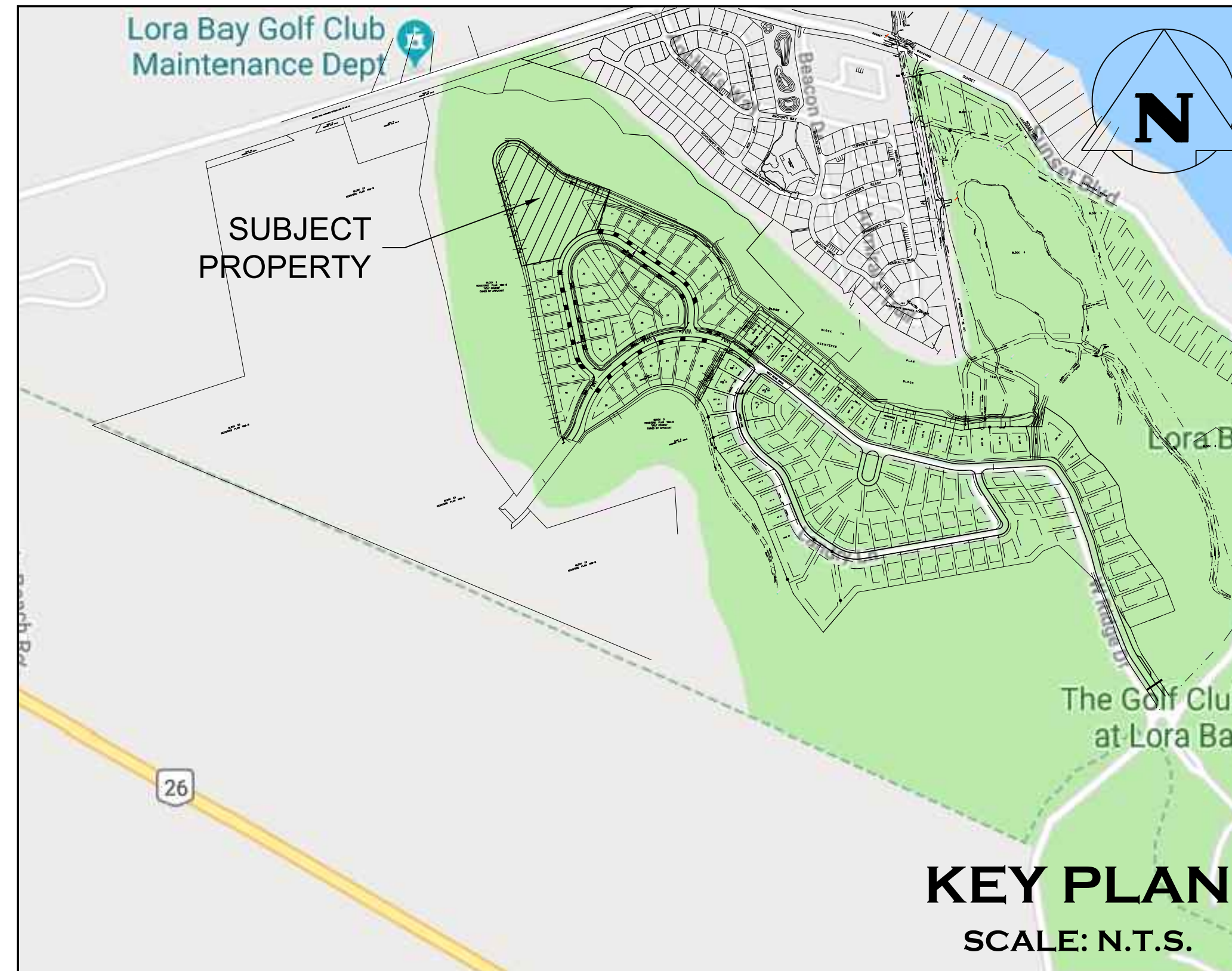
List of Drawings

Drawing C101:	General Site Servicing Plan
Drawing C102:	Overall Site Grading Plan
Drawing C103.A:	Plan & Profile – Street 'A' (STA 0+000 – 0+115.24)
Drawing C103.B:	Plan & Profile – Street 'B' (STA 0+000 – 0+183.04)
Drawing C103.C:	Plan & Profile – Street 'C' (STA 0+000 – 0+042.65), Street 'D' (STA 0+000 – 0+111.80)
Drawing C104:	Sanitary Drainage Plan
Drawing C105:	Storm Drainage Plan
Drawing C106:	Water Distribution Plan
Drawing C107:	Erosion & Sediment Control Plan
Drawing C108:	Construction Notes & Standard Details

LORA BAY PHASE 4 BLOCK 39

TOWN OF THE BLUE MOUNTAINS

COUNTY OF GREY



MUNICIPALITY

TOWN OF THE BLUE MOUNTAINS
32 MILL STREET
THORNBURY, ONTARIO, N0H 2P0

DEVELOPER

1382491 ONTARIO LTD. & BLEVINS DEVELOPMENTS (COVE) LTD.
6783 WELLINGTON ROAD #34, RR#22
CAMBRIDGE, ON N3C2V4

DEVELOPER'S ENGINEER AND LANDSCAPE ARCHITECT



THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

DRAWING

TITLE

C101	GENERAL SITE SERVICING PLAN
C102	OVERALL SITE GRADING PLAN
C103.A	PLAN & PROFILE STREET 'A' (STA. 0+000 - 0+115.24)
C103.B	PLAN & PROFILE STREET 'B' (STA. 0+000 - 0+183.04)
C103.C	PLAN & PROFILE STREET 'C' (STA. 0+000 - 0+042.65)
	STREET 'D' (STA 0+000 - 0+111.80)
C104	SANITARY DRAINAGE PLAN
C105	STORM DRAINAGE PLAN
C106	WATER DISTRIBUTION PLAN
C107	EROSION AND SEDIMENT CONTROL PLAN
C108	CONSTRUCTION NOTES & STANDARD DETAILS
C109	COMPOSITE UTILITY PLAN

MASTER LEGEND

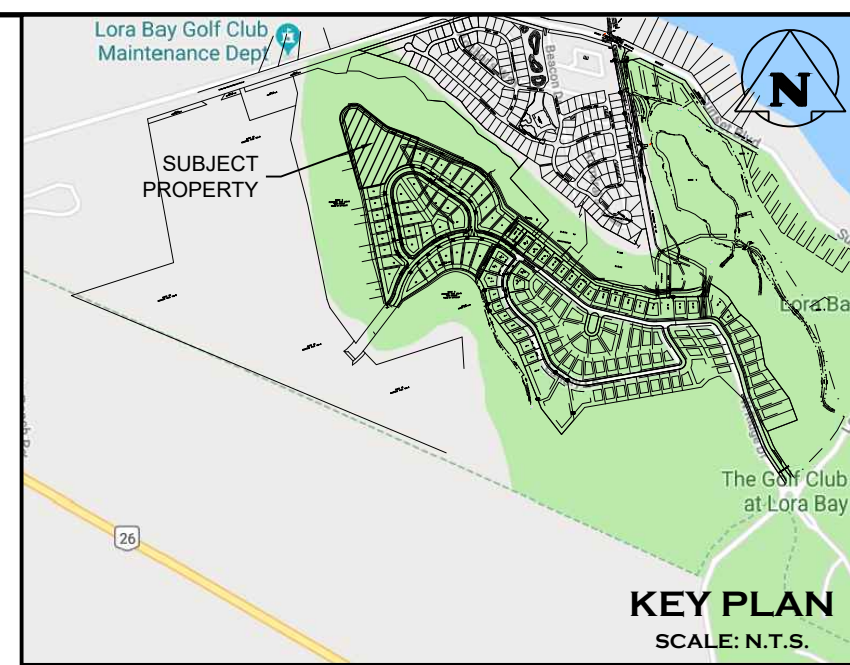
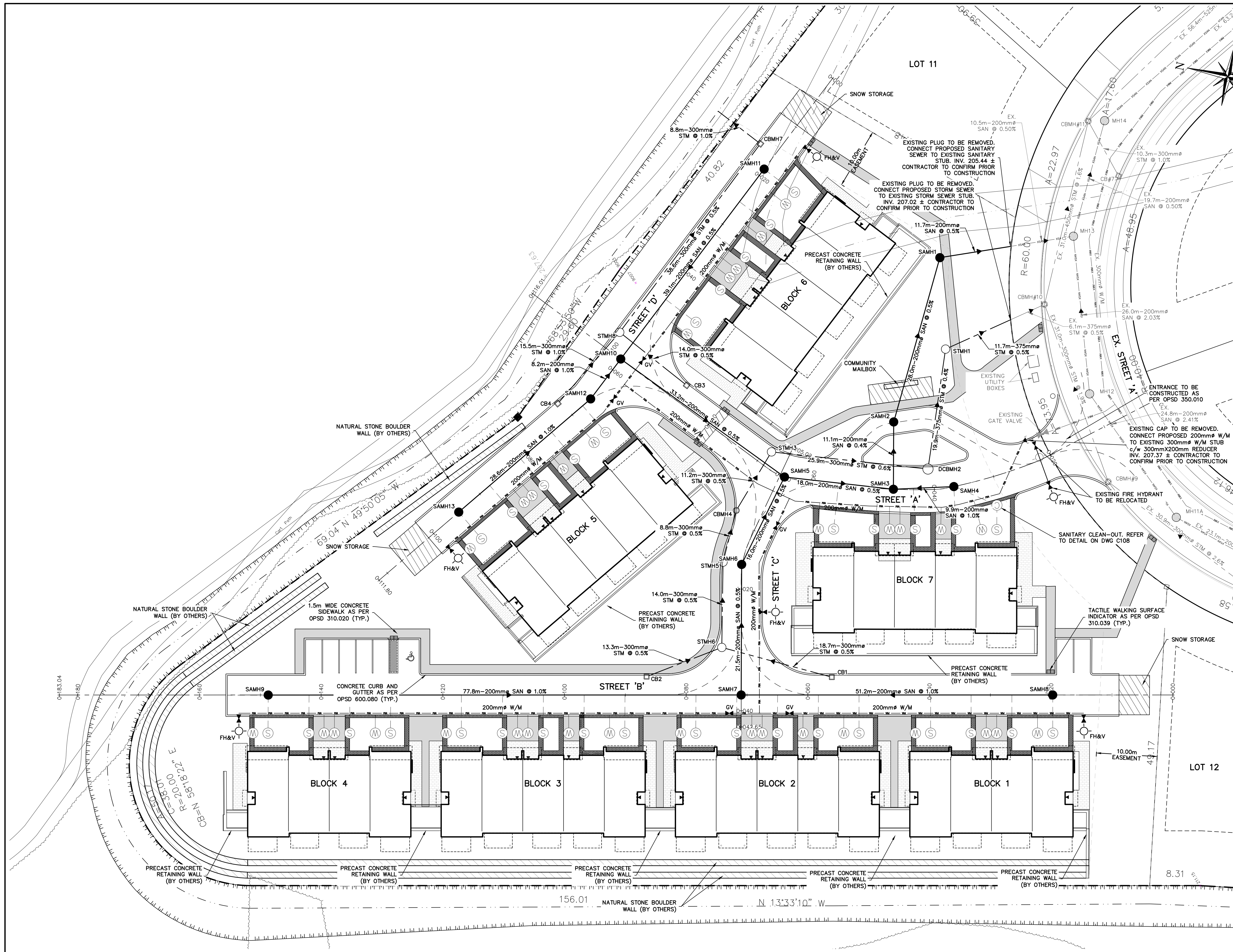
EXISTING FEATURES (EX.)

---XXX.X---	EX. CONTOUR
+XXX.XX	EX. GRADE
~	EX. TREELINE
---	EX. WATERCOURSE
---	EX. DITCH
---XIM---	EX. WATERMAIN
---	EX. WATER SERVICE
⊕	EX. FIRE HYDRANT & VALVE
---XSAN---	EX. SANITARY SEWER & MANHOLE
---XFM---	EX. SANITARY FORCEMAIN
---	EX. SANITARY SERVICE
---	EX. STORM SEWER & MANHOLE
□	EX. STORM CATCHBASIN
□	EX. STORM DOUBLE CATCHBASIN
○	EX. STORM CATCHBASIN MANHOLE
⊕	EX. STORM DOUBLE CATCHBASIN MANHOLE
---XGAS---	EX. GAS MAIN
---XB---	EX. BELL LINE
□	EX. BELL PEDESTAL
□	EX. CABLE TELEVISION PEDESTAL
○HP	EX. HYDRO POLE
⊕	EX. LIGHT STANDARD
⊕	EX. SIGN
▨	EX. BUILDING
⊕BM#	EX. BENCHMARK NUMBER & LOCATION
⊕BH#	EX. BOREHOLE NUMBER & LOCATION

PROPOSED FEATURES (PR.)

---	PR. PROPERTY LIMITS
+XXX.XX	PR. ELEVATION
+XXX.XX	PR. ELEVATION (MATCH EX. ELEVATION)
X.XX	PR. SWALE & SLOPE
---	PR. DITCH DRAINAGE
---	PR. WATERMAIN & VALVE
---	PR. WATER SERVICE
⊕	PR. FIRE HYDRANT & VALVE
⊕	PR. WATER VALVE CHAMBER
⊕	PR. WATER QUALITY TESTING STATION
---	PR. SANITARY SEWER & MANHOLE
---	PR. SANITARY FORCEMAIN
---	PR. SANITARY SERVICE
---	PR. SANITARY CATCHMENT
⊕	CATCHMENT AREA ID
⊕	AREA (ha)
⊕	POPULATION (2.3 p.p.u.)
---	PR. STORM SEWER & MANHOLE
□	PR. CATCHBASIN
□	PR. DOUBLE CATCHBASIN
○	PR. CATCHBASIN MANHOLE
⊕	PR. DOUBLE CATCHBASIN MANHOLE
---	PR. STORM CATCHMENT
⊕	CATCHMENT AREA ID
⊕	RUNOFF COEFFICIENT
⊕	DRAINAGE AREA (ha)
---	PR. CURB CUT
⊕	PR. CANADA POST COMMUNITY MAIL BOX
⊕	PR. TRANSFORMER
⊕	PR. STOP SIGN
⊕	PR. NAME SIGN
⊕	PR. NO PARKING SIGN
---	PR. FENCE
---	PR. BUILDING ENVELOPE
---	PR. LIGHT DUTY SILT FENCE
---	PR. HEAVY DUTY SILT FENCE
---	PR. STRAW BALE CHECK FLOW
---	PR. ROCK CHECK DAM
---	PR. SLOPE (3:1 MAX.)
---	PR. TREE PRESERVATION AREA
---	PR. TOPSOIL STOCKPILE LOCATION

**PROJECT No.: 183-5908
1ST SUBMISSION**



NOTE:
ALL WATER SERVICES LOCATION WITHIN
A DRIVEWAY ARE TO BE INSTALLED
c/w A SERVICE PROTECTION BOX.
REFER TO DETAIL ON DWG. C108.



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4. DO NOT SCALE THE DRAWINGS.
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TEMPORARY BENCHMARKS

TBM#1 -
TBM#2 -
TBM#3 -

***ADD REFERENCE TO SURVEY/SOURCE

No.	ISSUE	DATE: MM/DD/YYYY
0	ISSUED FOR 1st SUBMISSION	06/28/2021

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

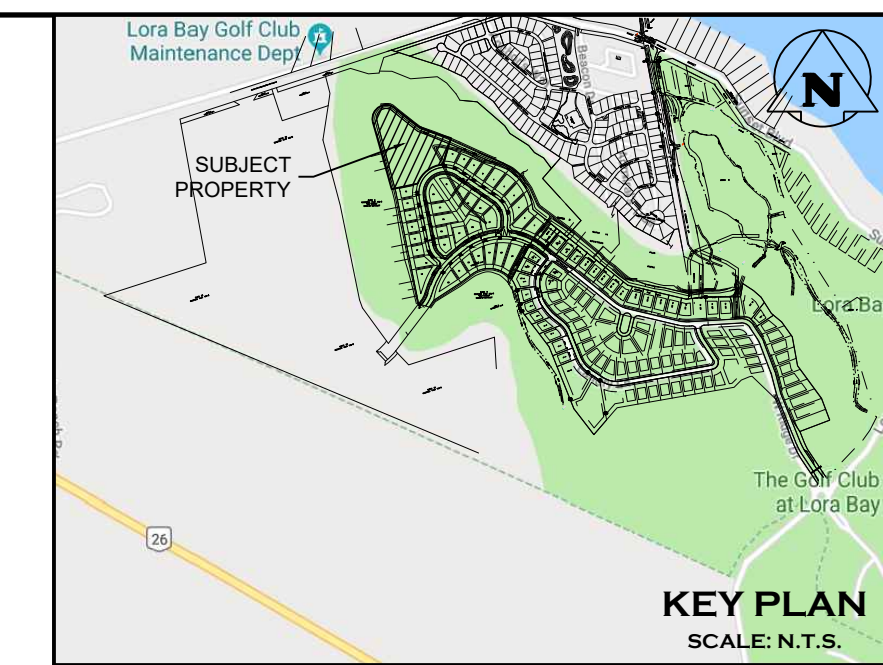
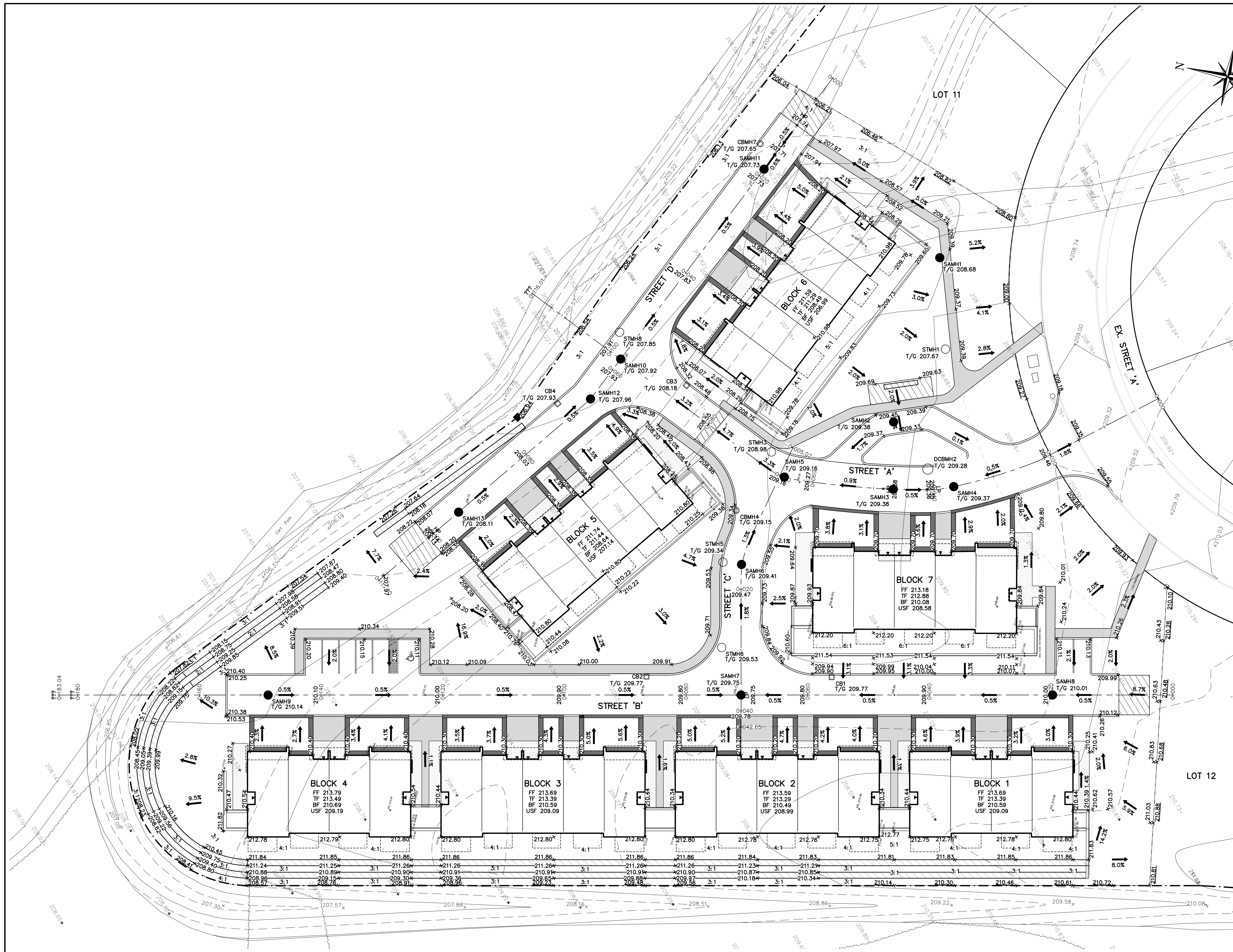
Project
LORA BAY PHASE 4 BLOCK 39
TOWN OF THE BLUE MOUNTAINS

Drawing
GENERAL SITE SERVICING PLAN

CROZIER
CONSULTING ENGINEERS

THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By: L.W. Design By: L.W. Project: **183-5908**
Check By: A.S. Check By: Scale: 1:300 Drawing: **C101**



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TEMPORARY BENCHMARKS

TBM#1 -
TBM#2 -
TBM#3 -

***ADD REFERENCE TO SURVEY/SOURCE

No.	ISSUE	DATE: MM/DD/YYYY
0	ISSUED FOR 1st SUBMISSION	06/28/2021

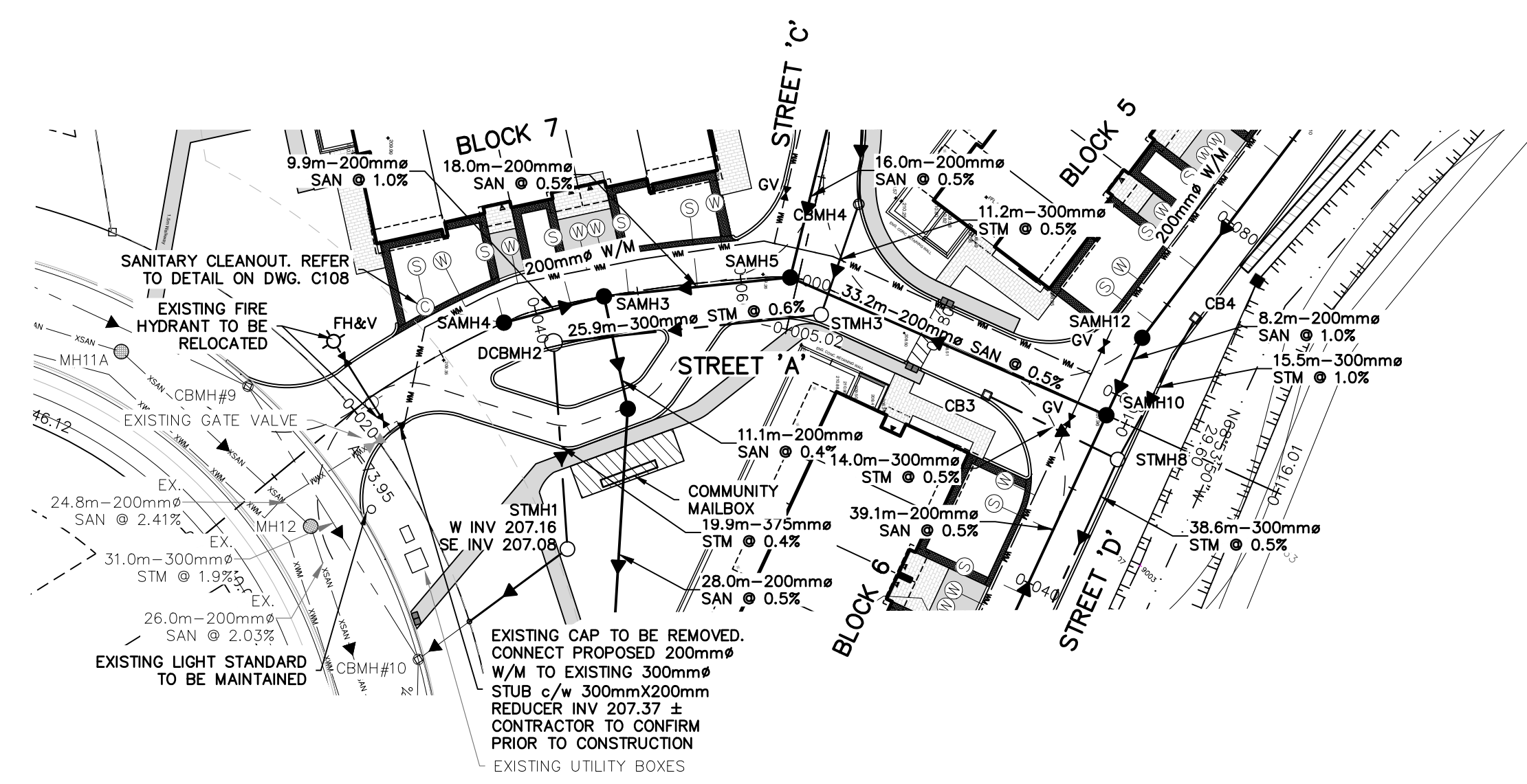
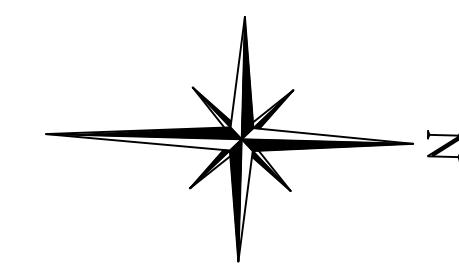
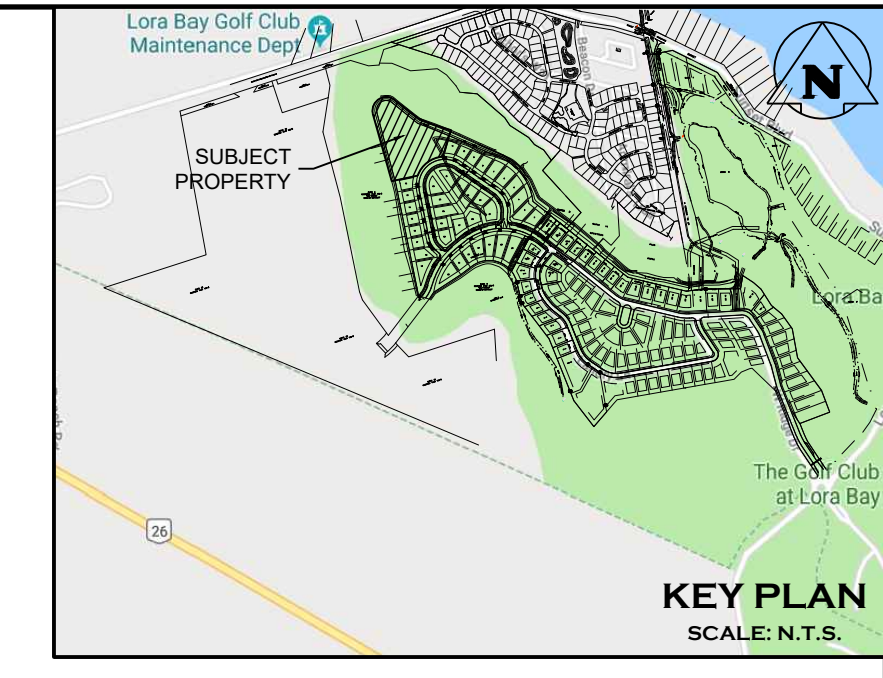
PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

LORA BAY PHASE 4 BLOCK 39
TOWN OF THE BLUE MOUNTAINS

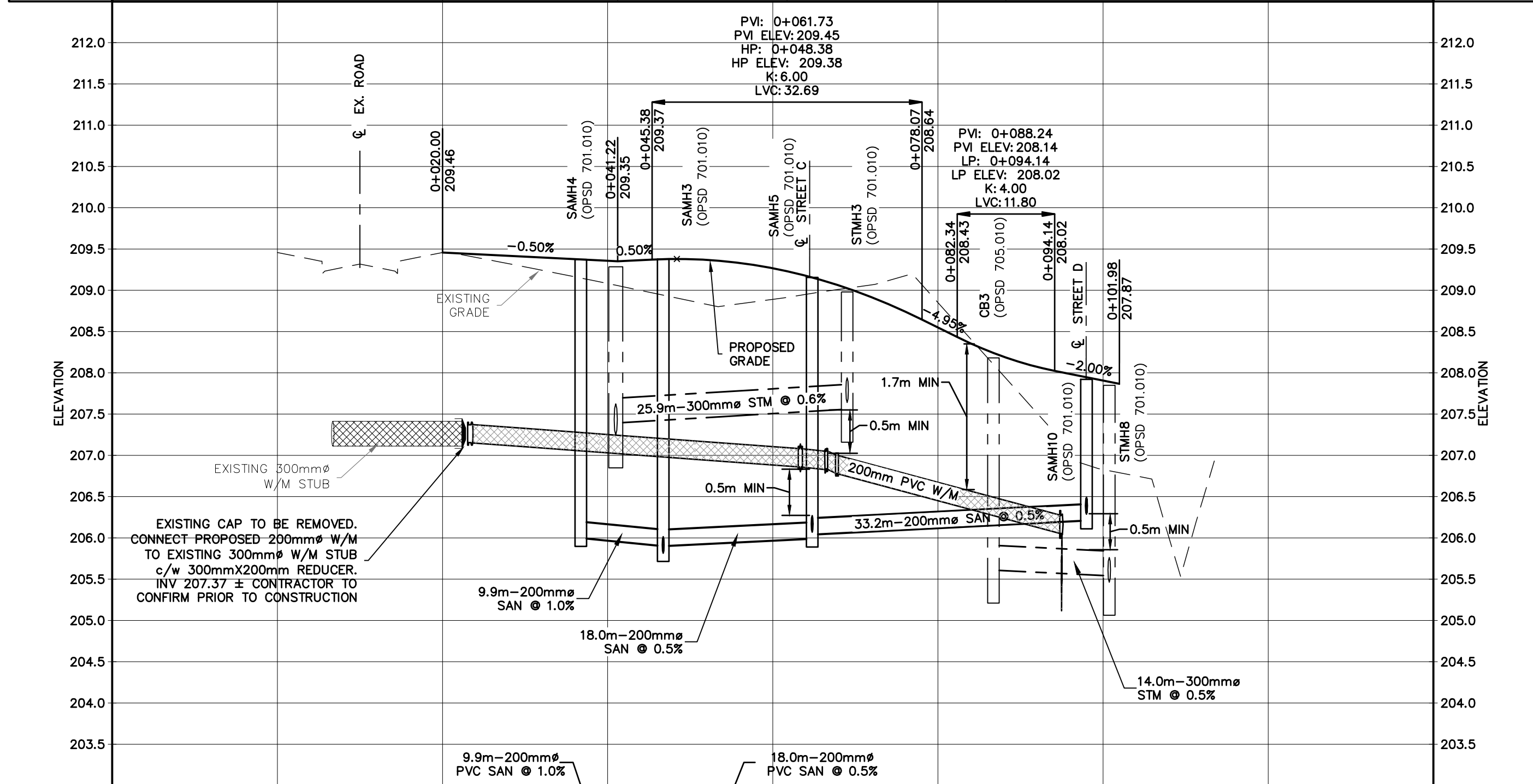
OVERALL GRADING PLAN

THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By	L.W.	Design By	L.W.	Project	183-5908
Check By	A.S.	Check By		Scale	1:300
				Drawing	C102



STATION	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	STATION
VERTICAL DATA		21.22m @ 0.50%	20.51m @ 0.50%	26.51m @ 4.95%	13.74m @ 2.00%				VERTICAL DATA



STATION	0+000	0+020	0+040	0+060	0+080	0+100	0+140	STATION
SANITARY INVERT								
STORM INVERT								
EXISTING PROPOSED CENTERLINE								




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TEMPORARY BENCHMARKS		
TBM#1		
TBM#2		
TBM#3		
***ADD REFERENCE TO SURVEY/SOURCE		
No.	ISSUE	DATE: MM/DD/YYYY
0	ISSUED FOR 1st SUBMISSION	06/28/2021

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

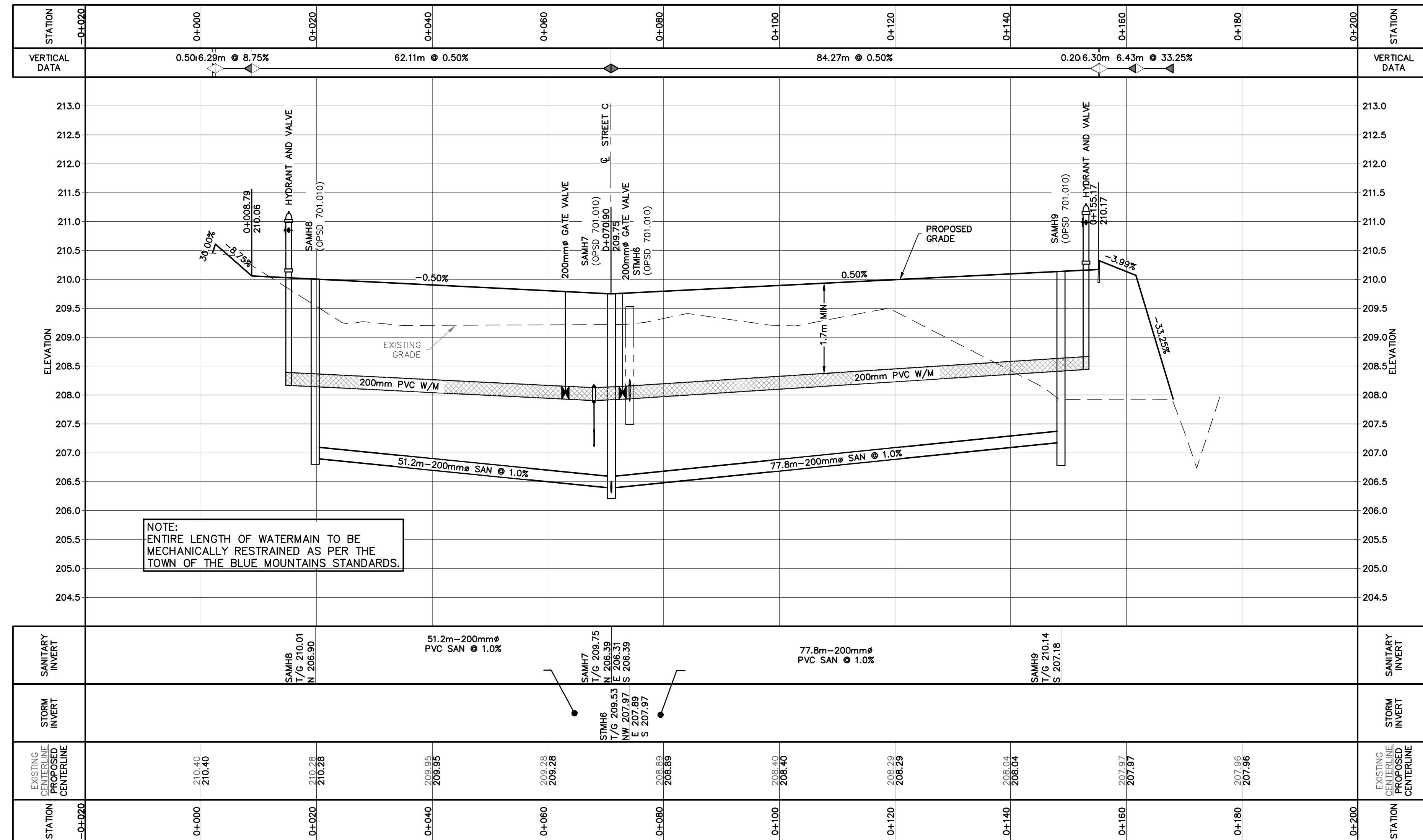
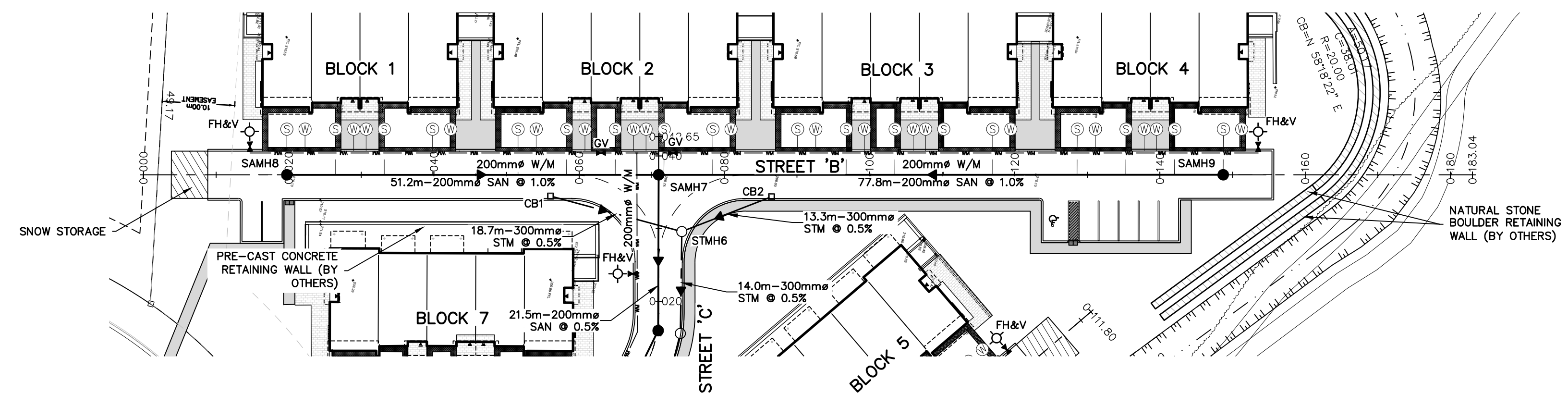
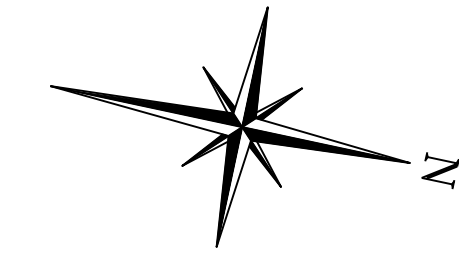
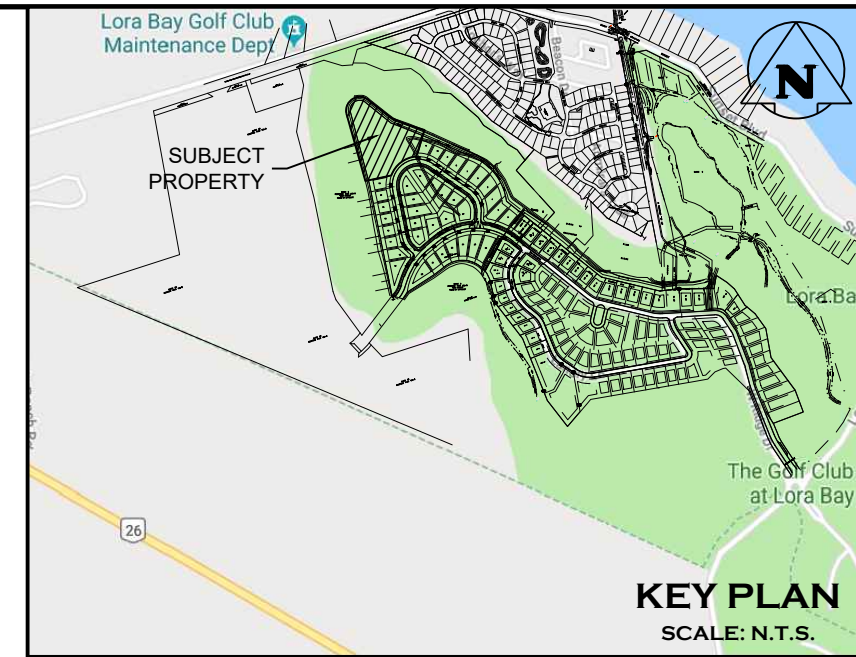
**LORA BAY PHASE 4 BLOCK 39
TOWN OF THE BLUE MOUNTAINS**

Drawing
**PLAN & PROFILE
STREET 'A' (STA 0+000 - 0+115.24)**



**THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA**

Drawn By	L.W.	Design By	L.W.	Project	183-5908
Check By	A.S.	Check By		Scale H=1:500 V=1:50	C103.A



NOTE:
ENTIRE LENGTH OF WATERMAIN TO BE MECHANICALLY RESTRAINED AS PER THE TOWN OF THE BLUE MOUNTAINS STANDARDS.



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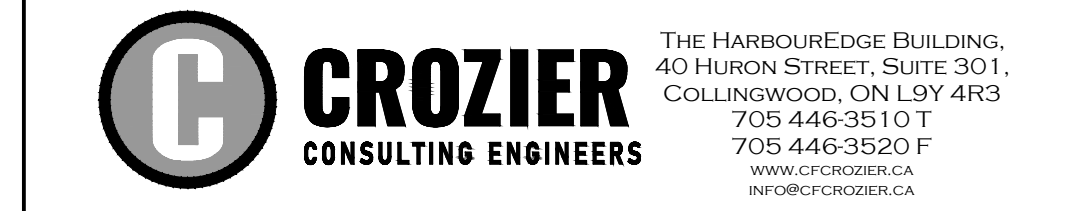
TEMPORARY BENCHMARKS
 TBM#1 -
 TBM#2 -
 TBM#3 -
 ***ADD REFERENCE TO SURVEY/SOURCE

No.	ISSUE	DATE: MM/DD/YYYY
0	ISSUED FOR 1st SUBMISSION	06/28/2021

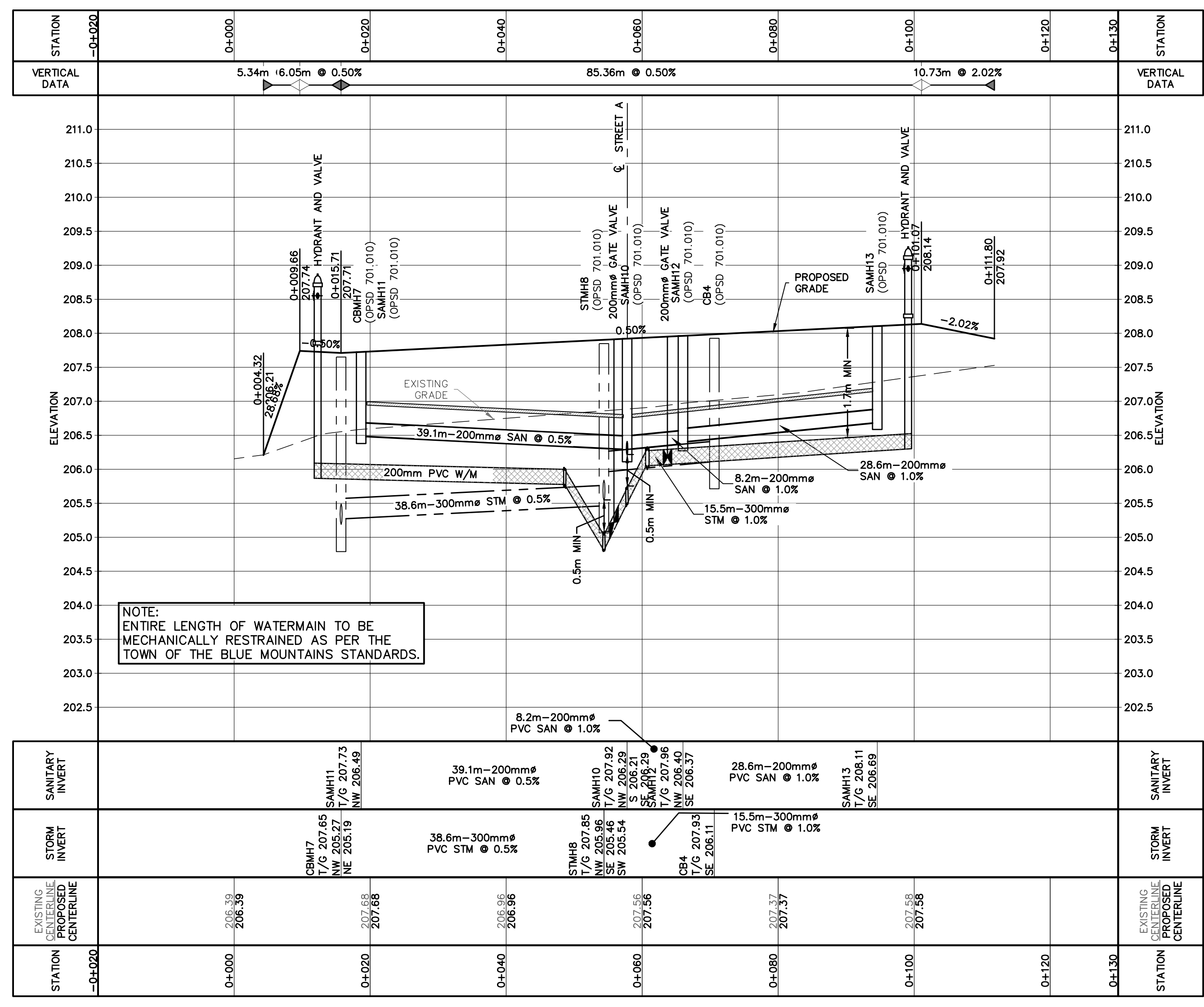
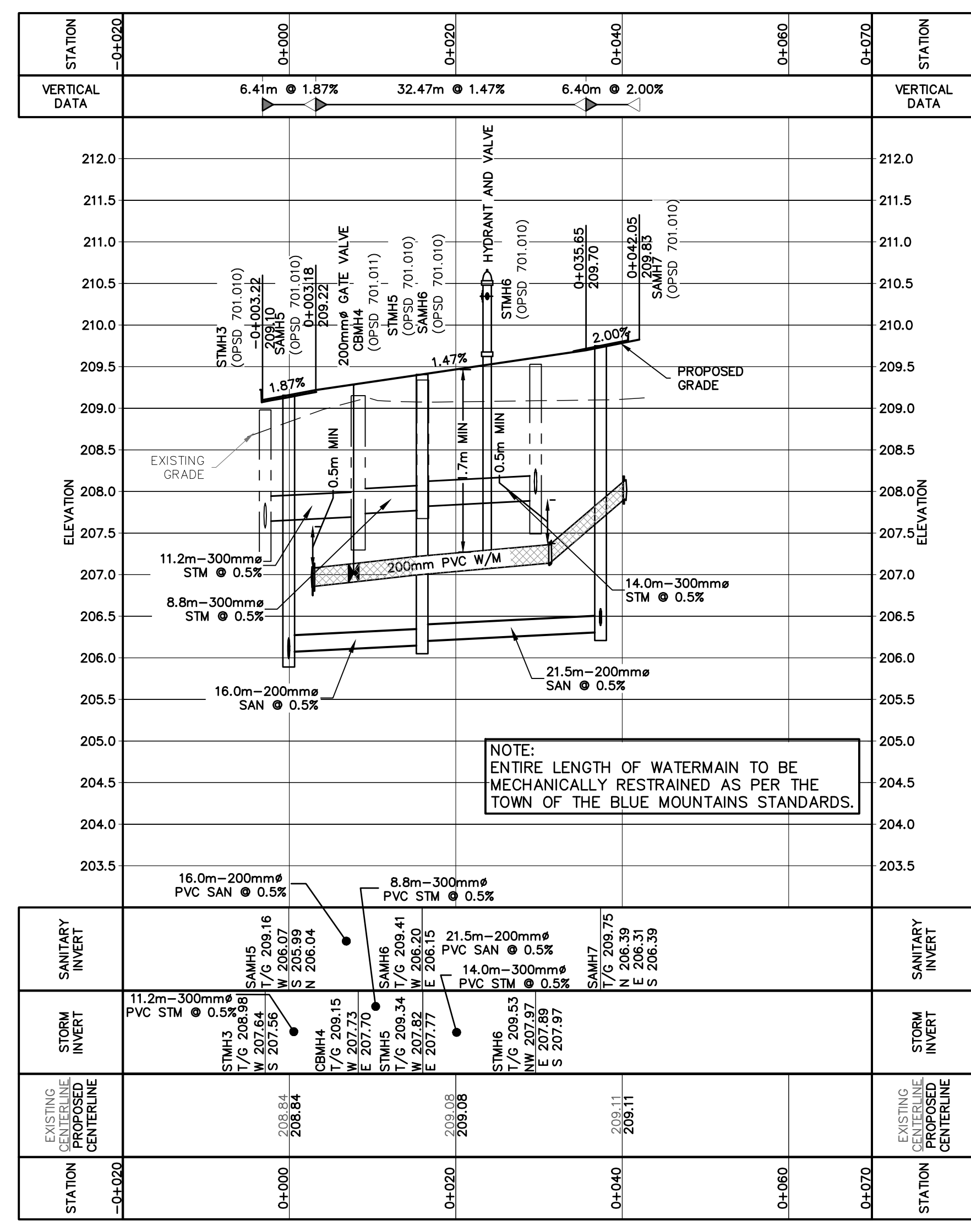
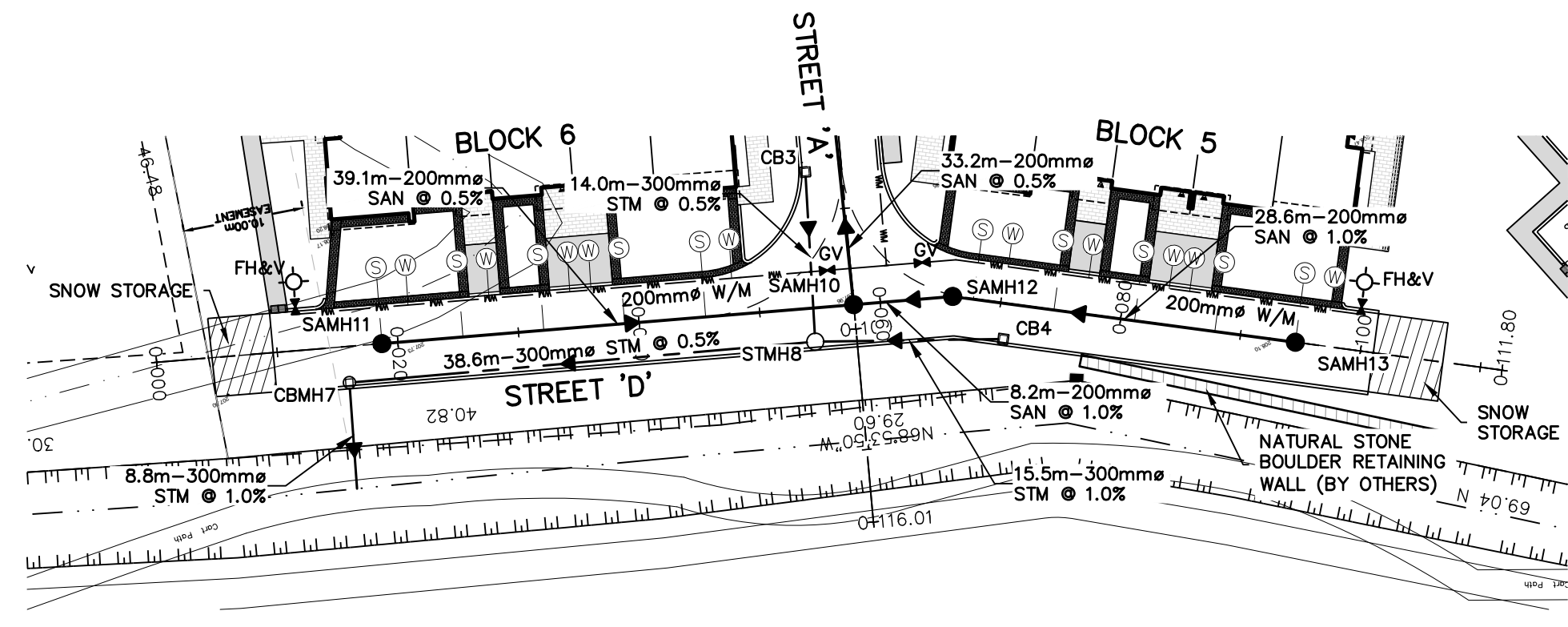
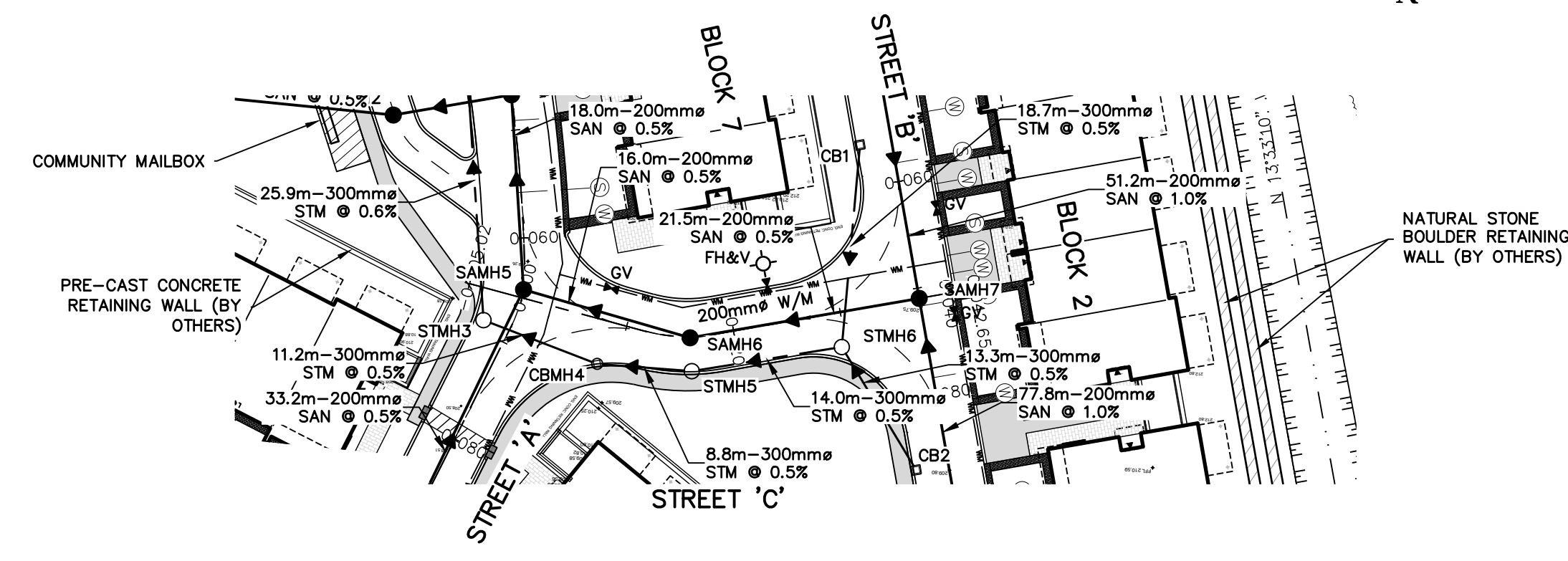
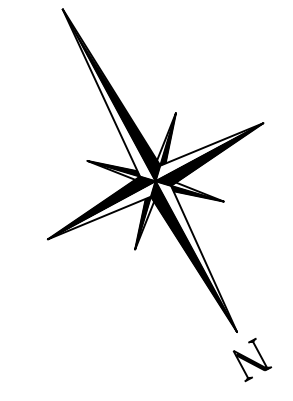
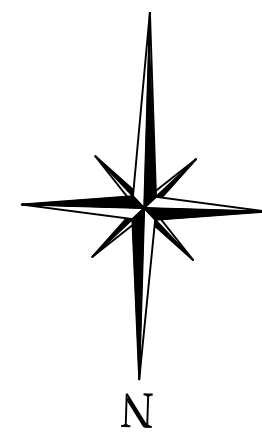
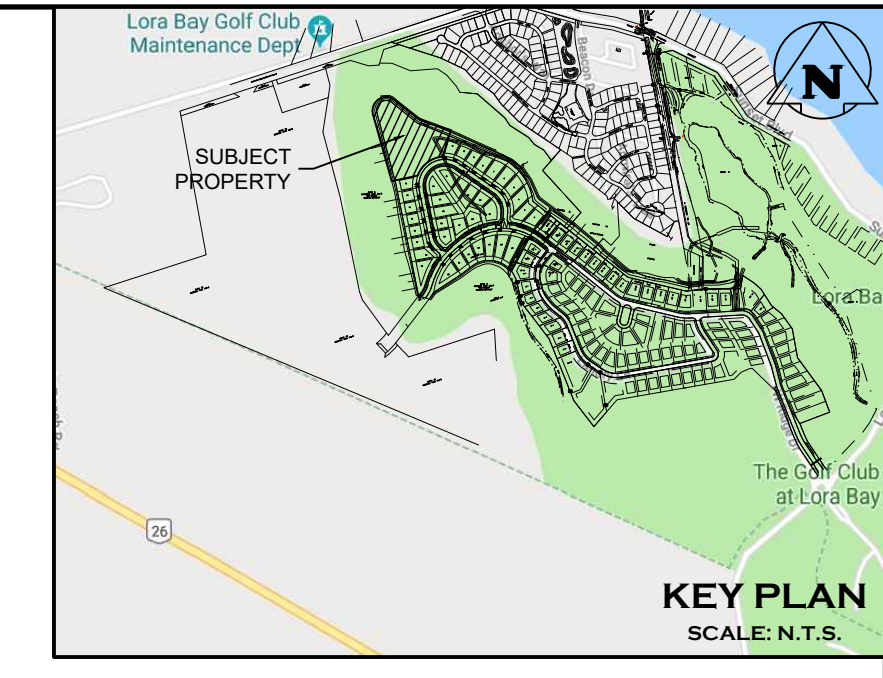
PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Project
LORA BAY PHASE 4 BLOCK 39
TOWN OF THE BLUE MOUNTAINS

Drawing
PLAN & PROFILE
STREET 'B' (STA 0+000 - 0+183.04)



Drawn By	L.W.	Design By	L.W.	Project	183-5908	
Check By	A.S.	Check By		Scale	H=1:500 V=1:50	
					Drawing	C103.B



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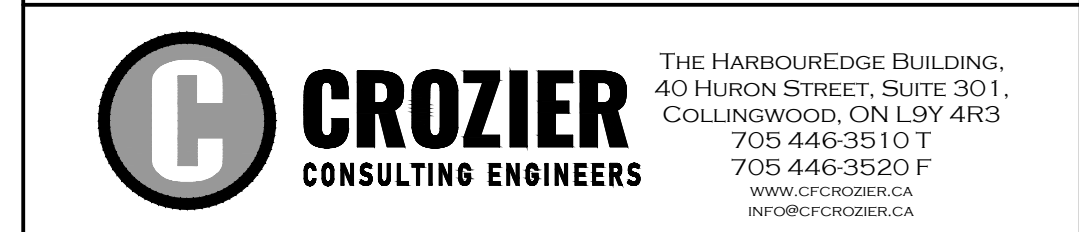
TEMPORARY BENCHMARKS
 TBM#1 -
 TBM#2 -
 TBM#3 -
 ***ADD REFERENCE TO SURVEY/SOURCE

No.	ISSUE	DATE: MM/DD/YYYY
0	ISSUED FOR 1st SUBMISSION	06/28/2021

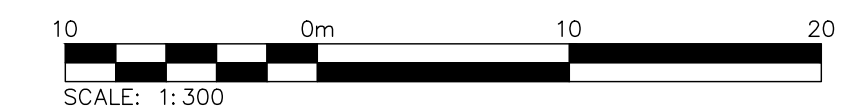
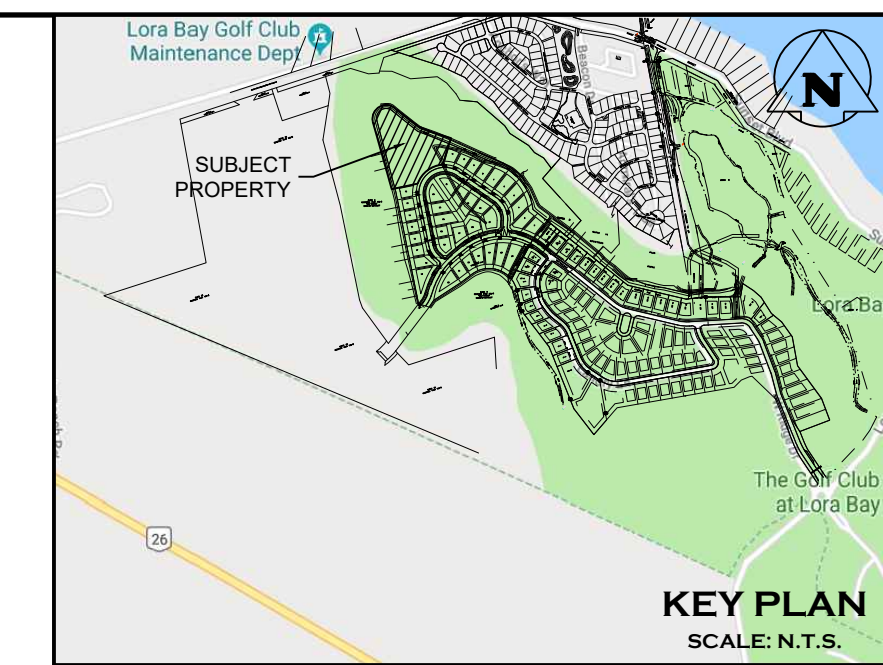
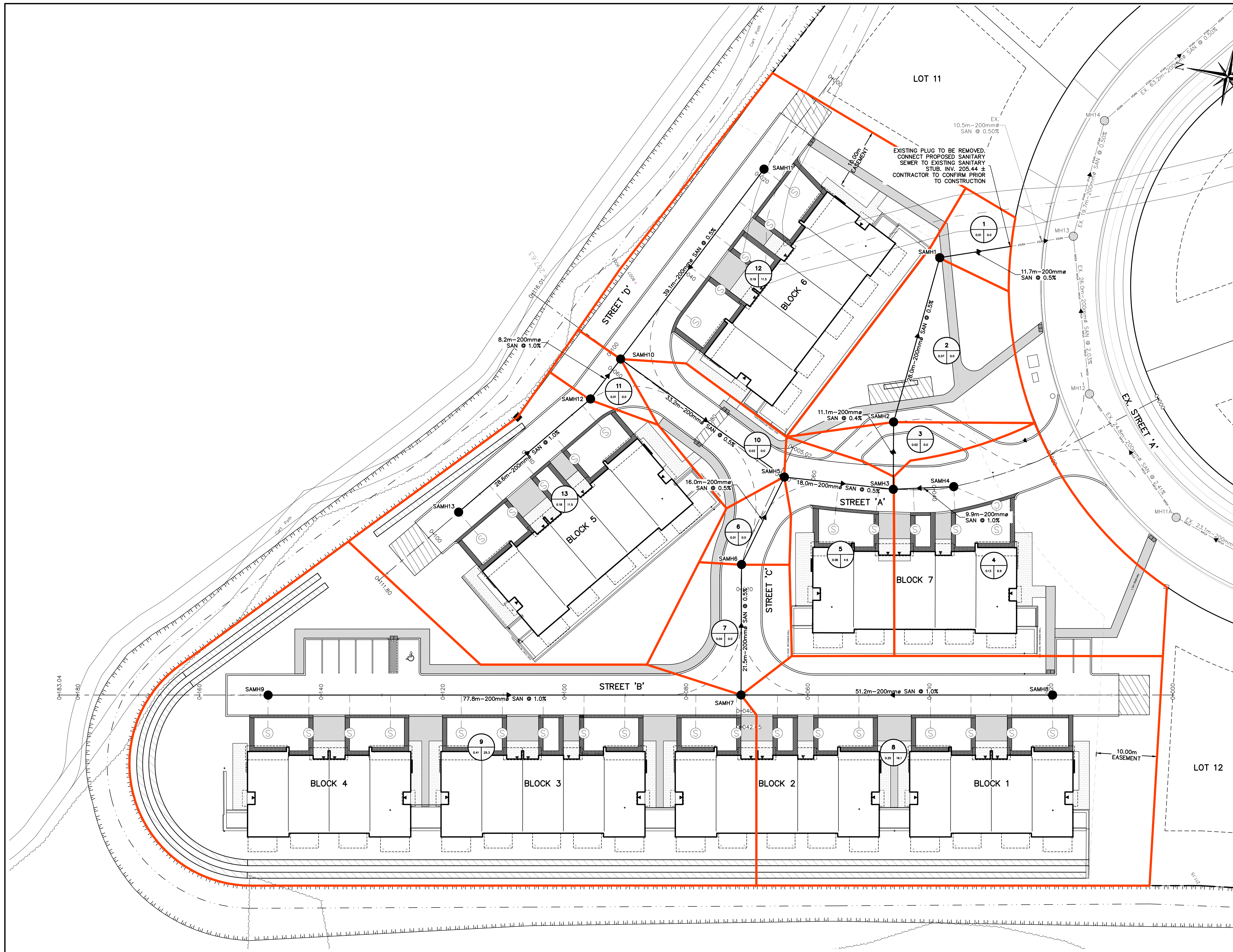
PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Project
LORA BAY PHASE 4 BLOCK 39
TOWN OF THE BLUE MOUNTAINS

Drawing
PLAN & PROFILE
STREET 'C' (STA 0+000 - 0+042.65)
STREET 'D' (STA 0+000 - 0+111.80)



Drawn By	L.W.	Design By	L.W.	Project	183-5908
Check By	A.S.	Check By	A.S.	Scale H=1:500 V=1:50	C103.C



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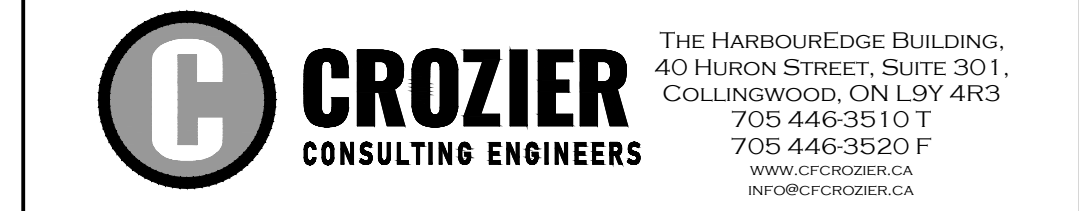
TEMPORARY BENCHMARKS
 TBM#1 -
 TBM#2 -
 TBM#3 -
 ***ADD REFERENCE TO SURVEY/SOURCE

No.	ISSUE	DATE: MM/DD/YYYY
0	ISSUED FOR 1st SUBMISSION	06/28/2021

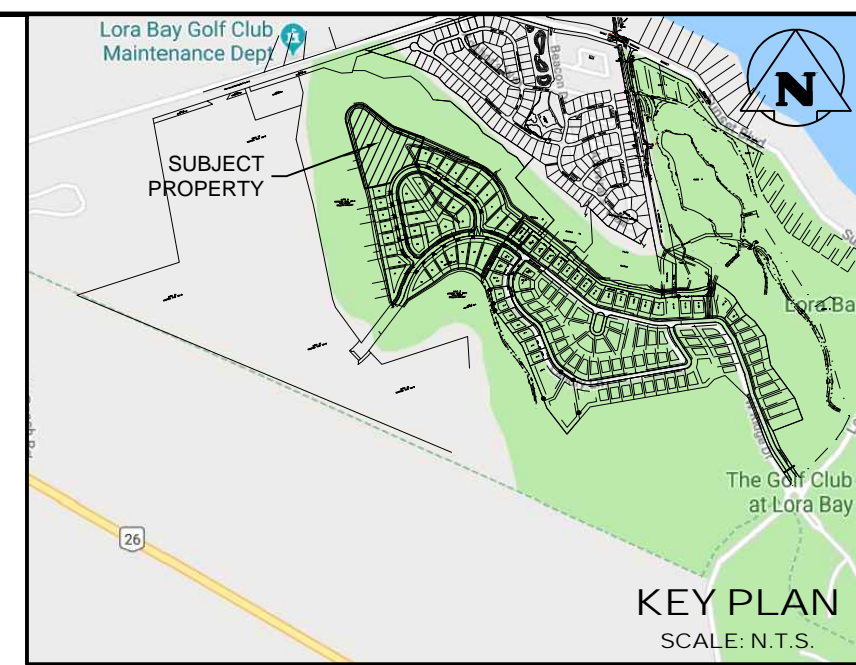
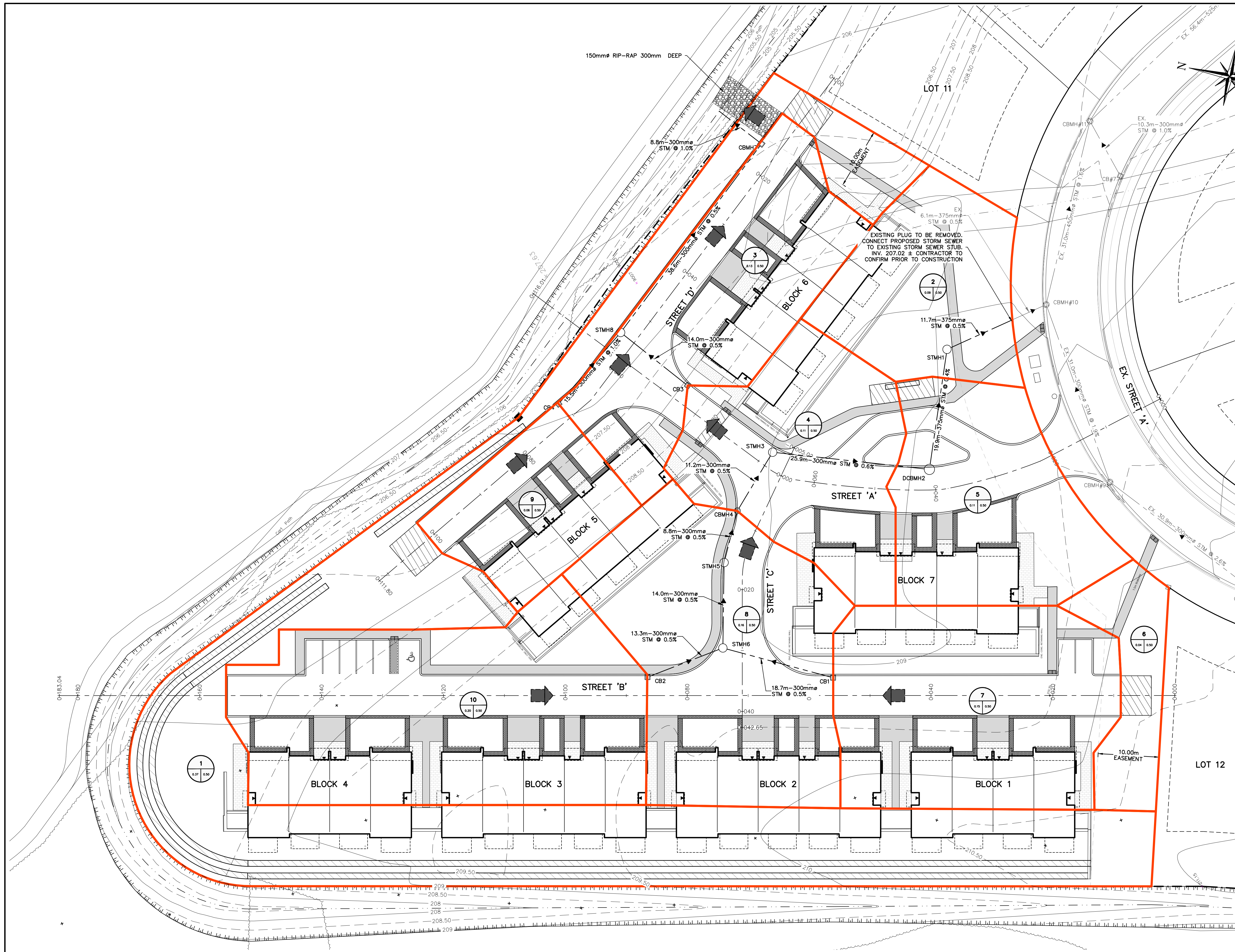
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Project: LORA BAY PHASE 4 BLOCK 39
TOWN OF THE BLUE MOUNTAINS

Drawing: SANITARY DRAINAGE AREA PLAN



Drawn By: L.W.	Design By: L.W.	Project: 183-5908
Check By: A.S.	Scale: 1:300	Drawing: C104



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TEMPORARY BENCHMARKS

TBM#1-	
TBM#2-	
TBM#3-	

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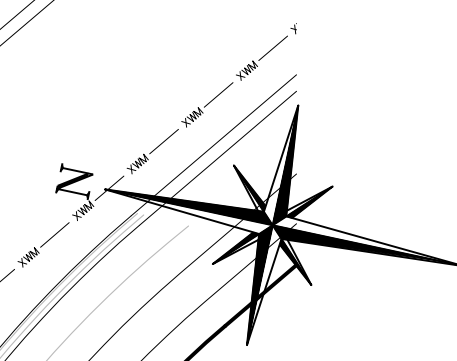
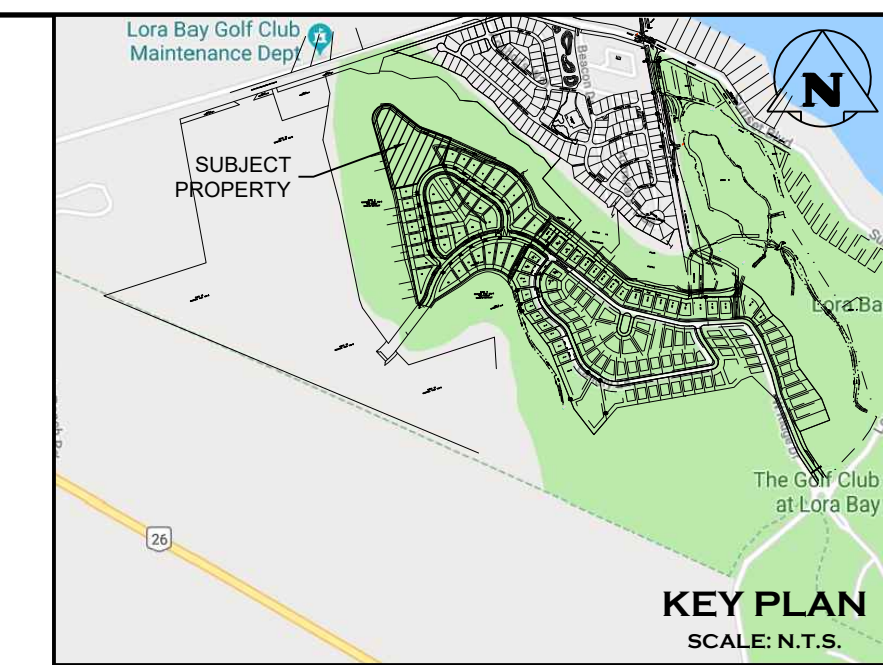
Project
LORA BAY PHASE 4 BLOCK 39
TOWN OF THE BLUE MOUNTAINS

Drawing
STORM DRAINAGE AREA PLAN

CROZIER CONSULTING ENGINEERS
The Harbour Edge Bldg. Inc.,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	L.W.	Design By	L.W.	Project	183-5908
Check By	A.S.	Check By		Scale	1:300 Drawing

C105



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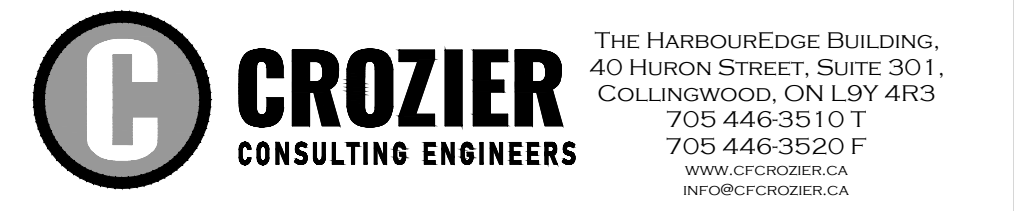
TEMPORARY BENCHMARKS
 TBM#1 -
 TBM#2 -
 TBM#3 -
 ***ADD REFERENCE TO SURVEY/SOURCE

No.	ISSUE	DATE: MM/DD/YYYY
0	ISSUED FOR 1st SUBMISSION	06/28/2021

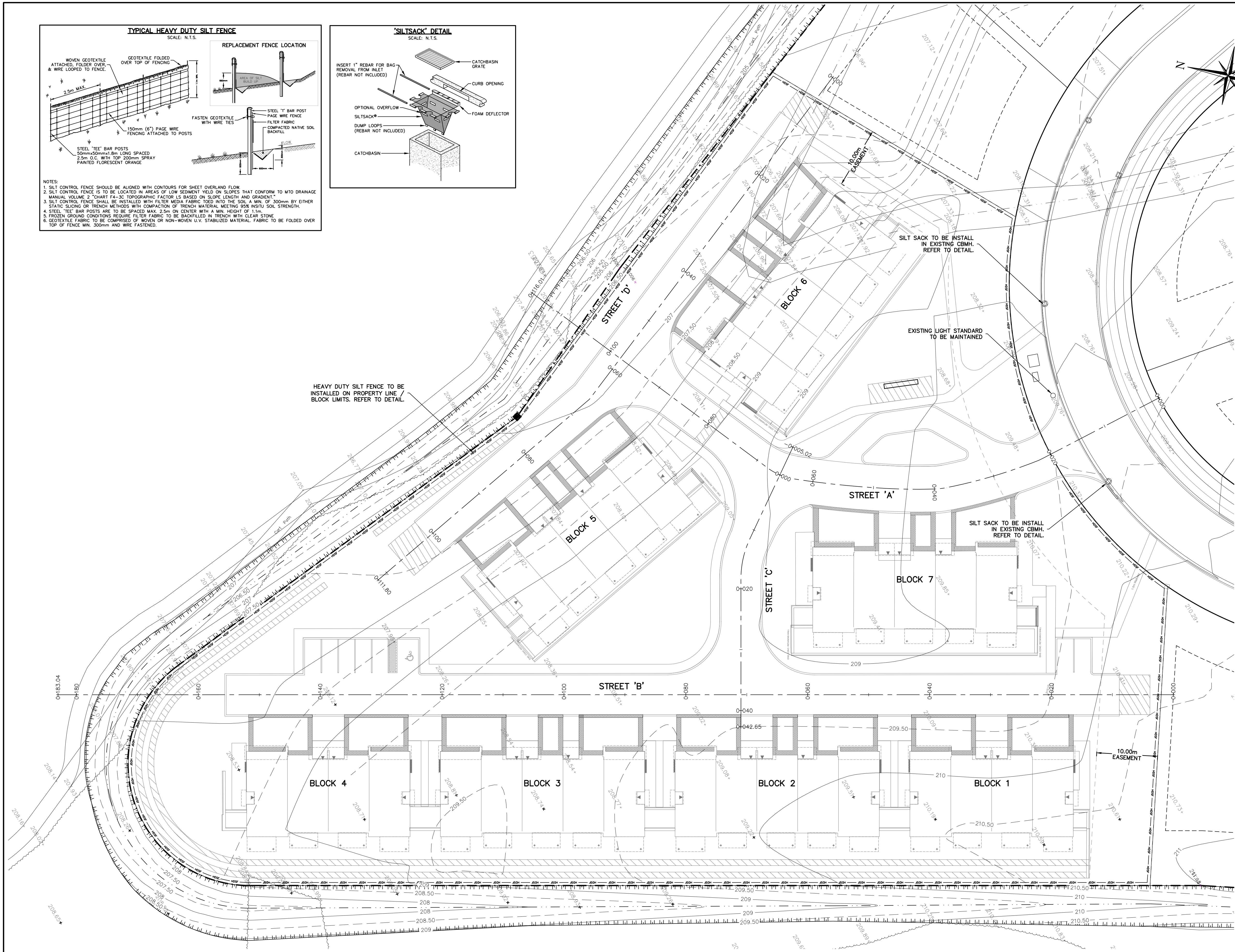
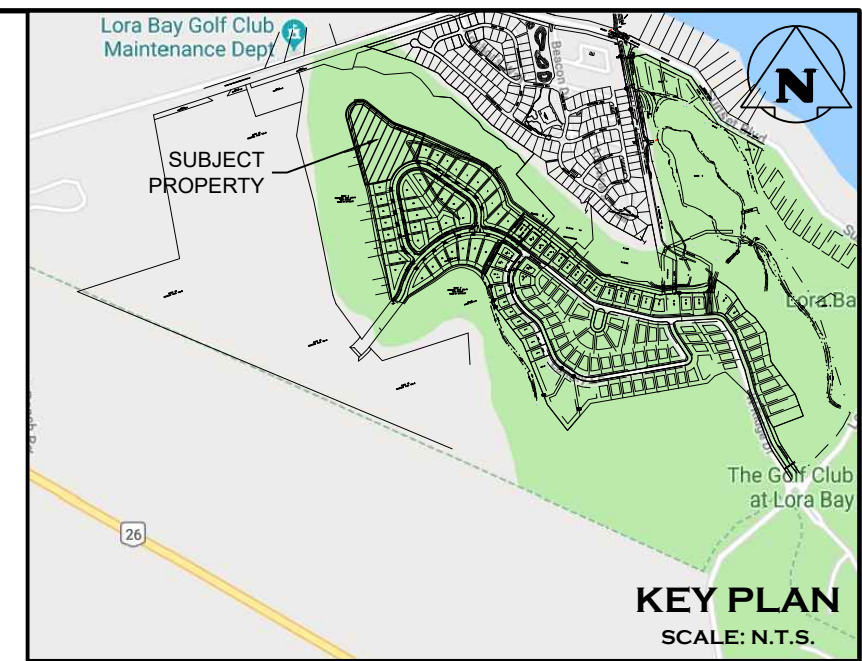
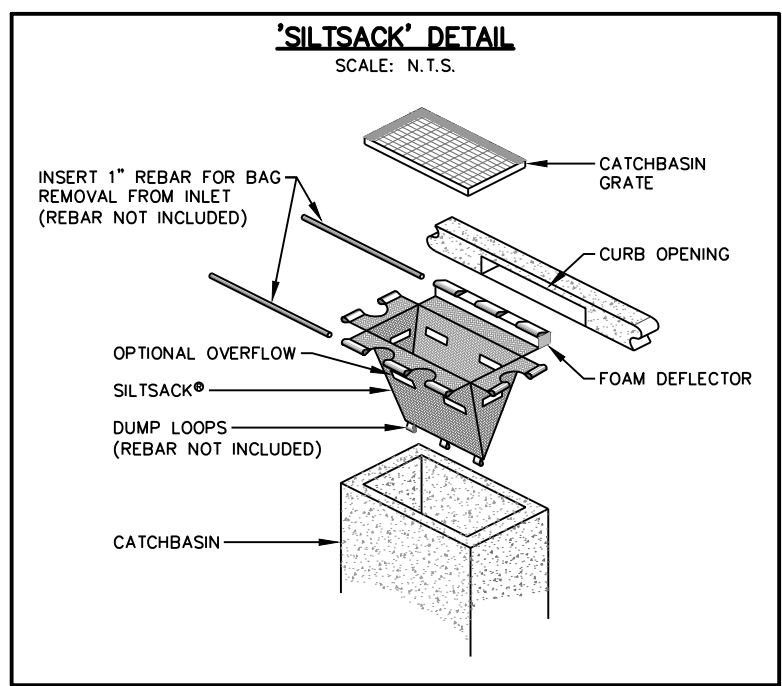
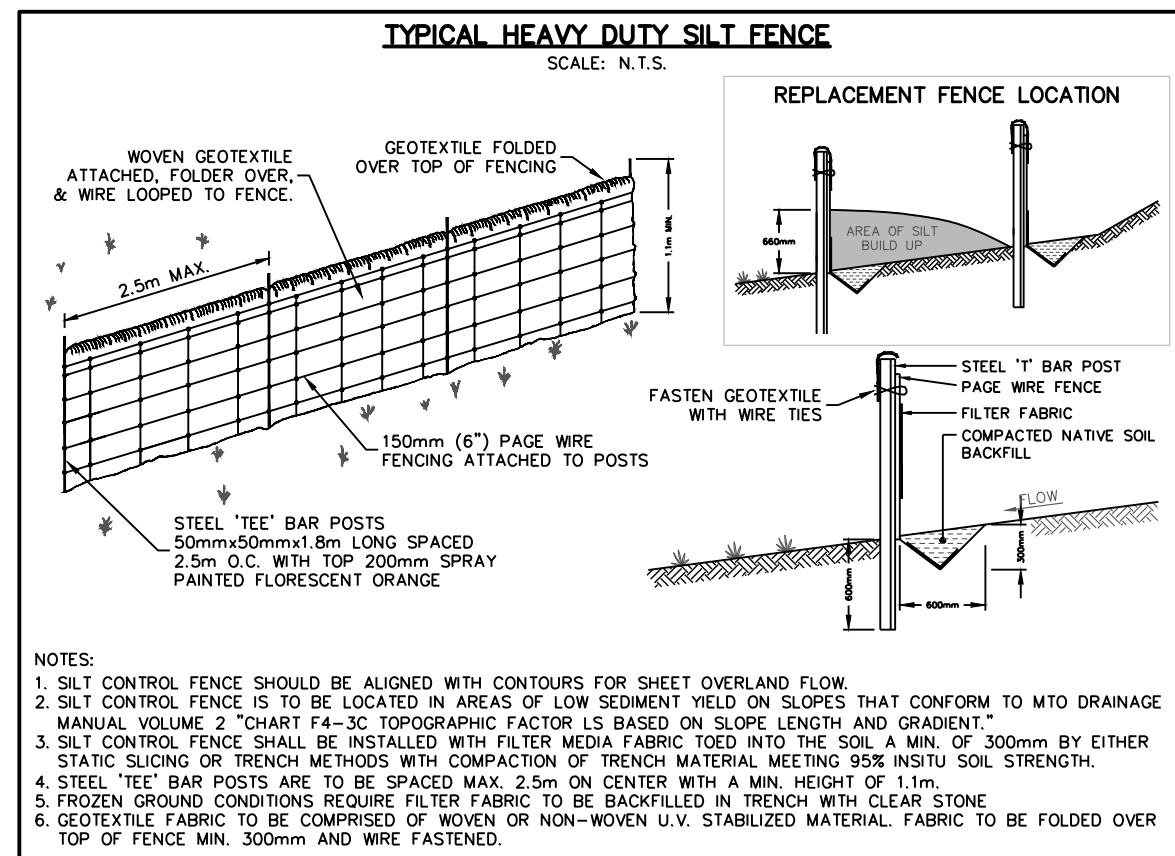
PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Project
LORA BAY PHASE 4 BLOCK 39
 TOWN OF THE BLUE MOUNTAINS

Drawing
WATER DISTRIBUTION PLAN



Drawn By	L.W.	Design By	L.W.	Project	183-5908
Check By	A.S.	Check By		Scale	1:400
				Drawing	C106



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TEMPORARY BENCHMARKS

- TBM#1-
- TBM#2-
- TBM#3-

***ADD REFERENCE TO SURVEY/SOURCE

No.	ISSUE	DATE: MM/DD/YYYY
0	ISSUED FOR 1st SUBMISSION	06/28/2021

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Project
LORA BAY PHASE 4 BLOCK 39
TOWN OF THE BLUE MOUNTAINS

Drawing
EROSION AND SEDIMENT CONTROL PLAN



THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By L.W.	Design By L.W.	Project 183-5908
Check By A.S.	Scale 1:400	Drawing C107

CONSTRUCTION NOTES

GENERAL

1. ALL EXISTING UNDERGROUND UTILITIES AND SERVICES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
2. ANY SITE ILLUMINATION TO BE DIRECTED DOWNWARD AND INTERNAL TO SITE ONLY.
3. DETAILS ON PROPOSED PLANTING, LANDSCAPE FEATURES, SITE TREATMENTS ARE PREPARED BY LANDSCAPE ARCHITECT.
4. ROAD OCCUPANCY PERMIT IS REQUIRED FROM THE TOWN PRIOR TO ANY WORKS COMPLETED WITHIN THE MUNICIPAL RIGHT OF WAY (ROW). CONTRACTOR IS RESPONSIBLE TO RETAIN PERMIT.
5. ALL BOULEVARDS & DISTURBED AREAS ARE TO BE RESTORED TO EXISTING CONDITIONS OR BETTER. 200mm TOPSOIL & SEED UNLESS OTHERWISE NOTED.
6. CLEAR STONE WRAPPED IN FILTER CLOTH CAN BE SUBSTITUTED FOR BEDDING MATERIAL IF APPROVED BY THE GEOTECHNICAL ENGINEER.
7. ALL PROPERTY BARS TO BE PROTECTED DURING CONSTRUCTION. BARS ARE TO BE PLACED BY O.L.S. AT CONTRACTOR'S EXPENSE IF DAMAGED OR REMOVED.
8. DEWATERING TO BE CARRIED OUT IN ACCORDANCE WITH OPSS-517 & 518 TO MAINTAIN ALL TRENCHES IN A DRY CONDITION. CONTRACTOR IS RESPONSIBLE FOR OBTAINING M.E.C.P. PERMIT IF REQUIRED.
9. ALL RIP-RAP/GABION MATTRESSES TO BE PLACED UPON FILTER CLOTH.
10. SIGNAGE TO BE INSTALLED PER TOWN STANDARDS. STREET SIGNS AND STOP SIGNS TO BE INSTALLED ON SEPARATE POSTS.

ROADS

1. ALL EXCAVATION SHALL CONFORM TO THE CURRENT ONTARIO PROVINCIAL SPECIFICATION FOR GRADING OPSS 206.
2. THE DEVELOPER SHALL RETAIN A QUALIFIED SOILS CONSULTANT TO CARRY OUT COMPACTION TESTS ON THE COMPLETED SUBGRADE AND SUBSEQUENT LIFTS OF GRANULAR BASE MATERIAL BEFORE PLACEMENT OF NEXT GRANULAR OR ASPHALT LIFT.
3. ALL VEGETATION, BOULDERS OVER 150mm ϕ , TOPSOIL AND ORGANIC OR FROST-SUSCEPTIBLE MATERIALS, SHALL BE REMOVED FROM THE ROAD BASE TO A DEPTH OF AT LEAST 1.20m BELOW FINISHED GRADE AND REPLACED WITH SUITABLE MATERIAL.
4. ALL UNSUITABLE EXCAVATED MATERIAL SHALL BE REMOVED FROM THE ENTIRE ROAD CORRIDOR AND DEPOSITED OFF THE SITE TO A DISPOSAL AREA APPROVED BY THE CONTRACT QUALIFIED PERSON.
5. THE SUB-GRADE SHALL BE SHAPED TO CONFORM TO THE REQUIRED LONGITUDINAL GRADE AND CROSS-SECTION AND SHALL HAVE A CROSSFALL OF 3% FROM THE CENTRELINE OF ROADWAY TO 0.5m FROM BACK OF CURB.
6. NATIVE SUB-GRADE TO BE GRADED, COMPACTED AND PROOF-ROLLED PRIOR TO PLACEMENT OF GRANULARS. COMPACTION TO BE MINIMUM 98% STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD). ALL IDENTIFIED SOFT AND WEAK SPOTS SHALL BE EXCAVATED AND BACKFILLED WITH A SUITABLE GRANULAR BASE MATERIAL. PROOF-ROLL TO BE OBSERVED AND ACCEPTED BY THE MUNICIPALITY AND GEOTECHNICAL ENGINEER PRIOR TO FIRST LIFT OF GRANULAR MATERIAL. MUNICIPALITY TO BE NOTIFIED OF GRANULAR 'B' PROOF ROLL AND GIVEN THE OPTION TO ATTEND.
7. THE GRANULAR BASE SHALL BE LAID ON DRY, SMOOTH, PROPERLY GRADED SUB-GRADE, AND SHALL BE SPREAD FOR THE REQUIRED WIDTH TO MEET THE EDGE OF SUB-GRADE. THE GRANULAR ROAD BASE SHALL CONSIST OF A BOTTOM COURSE OF 450mm MIN. CONSOLIDATED GRANULAR 'B' MATERIAL FULL WIDTH ACROSS THE ROADWAY AND A TOP COURSE OF 150mm CONSOLIDATED GRANULAR 'A' MATERIAL FULL WIDTH ACROSS THE ROADWAY AND CONFORMING IN ALL RESPECTS TO THE MINISTRY OF TRANSPORTATION ONTARIO PROVINCIAL STANDARD SPECIFICATIONS 1010. GRANULAR 'B' MATERIAL SHALL BE 450mm MINIMUM DEPTH FOR THE SUPERELEVATED SIDE OF THE INTERNAL ROADWAYS.
8. THE GRANULAR MATERIAL SHALL BE SPREAD IN LAYERS OF 150mm MAXIMUM COMPACTED DEPTHS, AND EACH LAYER SHALL BE THOROUGHLY COMPACTED TO 100% SPMDD.
9. NO GRANULAR BASE SHALL BE PLACED UNTIL THE GRADE ON WHICH IT IS TO BE LAID HAS BEEN INSPECTED AND APPROVED BY THE GEOTECHNICAL CONSULTANT AND CONTRACT ADMINISTRATOR.
10. ALL GRANULAR CONSTRUCTION SHALL CONFORM IN ALL RESPECTS TO ONTARIO PROVINCIAL STANDARD SPECIFICATION OPSS 314.
11. AS SOON AS THE GRANULAR BASE HAS BEEN COMPLETED IT SHALL BE THOROUGHLY COMPACTED AND SHAPED AND THE BASE COURSE ASPHALT PLACED. THE BASE COURSE SHALL CONSIST OF 50mm MIN. THICKNESS OF HL4 BASE COURSE ASPHALT. THE SURFACE COURSE SHALL CONSIST OF 40mm MIN. THICKNESS OF HL3 SURFACE COURSE ASPHALT. ASPHALT WORK SHALL CONFORM IN ALL RESPECTS TO ONTARIO PROVINCIAL STANDARD SPECIFICATIONS 310. THE ASPHALT COMPONENTS SHOULD BE COMPACTED TO 92% MAXIMUM RELATIVE DENSITY, AS PER OPSS 310.
12. JOINTS WITH EXISTING ASPHALT TO BE SAW CUT STRAIGHT PRIOR TO PLACING NEW ASPHALT AND TACK COAT APPLIED TO EXISTING ASPHALT AND CURB SURFACES.
13. ALL SERVICES, MANHOLES, VALVES, ETC. ARE TO BE INSTALLED TO MATCH GRADE OF BASE COURSE OF ASPHALT AND/OR FINISHED GRADE OF LANDSCAPING. UPON PLACEMENT OF SURFACE COURSE OF ASPHALT ALL APPURTENANCES LOCATED IN ROADWAY SHALL BE RAISED TO MATCH FINISHED GRADE.
14. SUBDRAINS TO BE LOCATED AS PER TYPICAL ROAD SECTION ON DWG. C108 AND O.P.S.D. 207.030. GRANULAR A EMBEDMENT MATERIAL OR APPROVED EQUIVALENT TO BE USED. WHERE LOCATION OF SUBDRAINS ARE NOT IN WELL DRAINED NATIVE SAND OR WELL DRAINED IMPORTED GRANULAR, THE SUBDRAIN SHALL HAVE GEOTEXTILE WRAP AND BE SURROUNDED ON ALL SIDES WITH 150MM OF 19MM CLEAR STONE AND CLEAR STONE TO BE COMPLETELY WRAPPED IN FABRIC.

STORM SEWER

1. MAIN SEWERS SHALL BE PVC PIPE (OPSS 410), MIN. PIPE STIFFNESS SHALL BE 320kPa OR CONCRETE A257.2 - CLASS - 650 (MIN.). ALL PIPE TO BE JOINED WITH A GASKETED BELL & SPIGOT SYSTEM.
2. MINIMUM PIPE SIZE, INCLUDING LEADS, SHALL BE 300mm ϕ .
3. STORM SEWER EMBEDMENT SHALL CONFORM WITH OPSS 802.010 USING GRANULAR 'A'.
4. PRECAST STORM MANHOLES SHALL BE PER OPSS 701.010 (1200mm ϕ) OR 701.011 (1500mm ϕ) WITH FRAME AND GRATE PER OPSS 401.010 TYPE 'A' AND HOLLOW RECTANGULAR LADDER RUNGS PER OPSS 405.010. BENCHING SHALL BE PROVIDED IN ALL MANHOLES.
5. PRECAST CATCHBASINS ARE TO BE OPSS 705.010 (SINGLE) OR 705.020 (DOUBLE) WITH FRAME AND GRATE OPSS 400.020. ALL CATCHBASINS AND CATCHBASIN MANHOLES SHALL HAVE SUMPS.
6. FROST STRAPS REQUIRED ON ALL MANHOLES AS PER OPSS 701.100.
7. CULVERTS TO HAVE MIN. 300mm COVER WHERE POSSIBLE. CULVERT MATERIAL TO BE PER TOWN STANDARD OR APPROVAL EQUIVALENT.
8. MINIMUM COVER ON STORM SEWER & CATHASINS LEADS TO BE PER TOWN STANDARD. CONTRACTOR TO APPLY INSULATION AS PER DETAIL ON DWG C107 WHERE MINIMUM COVER IS NOT OBTAINED.
9. STORM PIPE 450mm IN DIAMETER AND GREATER SHALL BE CONCRETE PIPE. ALL PIPE SMALLER THAN 450mm IN DIAMETER SHALL BE P.V.C.

WATERMAIN

A) PIPING

1. ALL CONSTRUCTION TO CONFORM TO AWWA C605-94 AND AWWA C600-99 STANDARDS. MATERIALS TO MEET NSF 60, 61 & 372.
2. WATERMAIN PIPE SHALL BE PVC DR18 (SIZES UP TO AND INCLUDING 300mm ϕ), CONFORMING TO AWWA C900. A DIFFERENT PIPE STRENGTH OR TYPE MAY BE REQUIRED BY THE MUNICIPALITY FOR SPECIAL CONDITIONS.
3. WATERMAIN DEFLECTION NOT TO EXCEED MANUFACTURER'S RECOMMENDATIONS. WHERE DEFLECTION CAN NOT MEET MANUFACTURER'S RECOMMENDATIONS, CONTRACTOR TO INSTALL THE REQUIRED MANUFACTURED BEND AS NECESSARY.
4. WATERMAIN SHALL BE BEDDED IN ACCORDANCE WITH OPSS 802.010 WITH GRANULAR 'A'.
5. WATERMAIN TO BE TESTED AND APPROVED PER THE TOWN OF THE BLUE MOUNTAINS - WATERMAIN COMMISSIONING PROTOCOL STANDARD (MAY 2021). CONTRACTOR TO SUBMIT WATERMAIN COMMISSIONING PLAN TO CONTRACT ADMINISTRATOR AND MUNICIPALITY 2 WEEKS BEFORE WATERMAIN INSTALLATION BEGINS. TESTING SHALL NOT COMMENCE UNTIL WATERMAIN COMMISSIONING PLAN IS APPROVED BY CONTRACT ADMINISTRATOR & MUNICIPALITY.
6. ALL TESTING REQUIRES NOTIFICATION IN WRITING, 72 HOURS PRIOR TO ALL TESTING.
7. ALL CONNECTIONS TO EXISTING MUNICIPAL SUPPLY MAINS MUST BE WITNESSED BY THE MUNICIPALITY OR REPRESENTATIVE AND GIVING 72 HOURS NOTICE PRIOR TO CONNECTION AND BACKFILLING OPERATIONS.
8. THE PVC PIPE INSTALLATION SHALL INCLUDE TRACER WIRE. TRACER WIRE TO BE 10 GAUGE, MULTI-STRAND SHALL BE PLACED ON TOP & ATTACHED IN TWO PLACES ON EACH LENGTH OF EVC WATERMAIN. ALL CONNECTIONS SHALL BE MADE WITH "DRYCONN WATERPROOF CONNECTORS" OR APPROVED EQUAL. MUNICIPALITY MUST BE ON SITE DURING ANY TRACER WIRE CONTINUITY TESTING.
9. THE MINIMUM COVER ON WATERMAINS SHALL BE 1.7m. WHEN COVER IS LESS THAN 1.7m, CONTRACTOR TO PROVIDE INSULATION PER DETAIL ON DWG C108.
10. CATHODIC PROTECTION REQUIRED ON ALL METALLIC FITTINGS AND PIPE AS PER OPSS 702 & TOWN STANDARD.
11. THRUST BLOCKS OR JOINT RESTRAINTS SHALL BE REQUIRED AT ALL CHANGES IN PIPE DIRECTION, TERMINATIONS AND ANY LOCATION WHERE THRUST PRESSURES MAY OCCUR. WHERE SOIL CONDITIONS ARE SUSPECT, SUCH AS IN DISTURBED SOILS OR SOILS WITH BEARING CAPACITY OF LESS THAN 200kPa, PIPE RESTRAINTERS SHALL BE USED. SEE TOWN STANDARDS OF APPROPRIATE PRODUCT REQUIREMENTS. THE USE OF THREADED RODS IN JOINT RESTRAINT IS NOT PERMISSIBLE.
12. FIRE HYDRANTS SHALL BE CANADA VALVE, OPEN LEFT. PAINTED CHROME YELLOW COMPLETE WITH FLEX STAKE

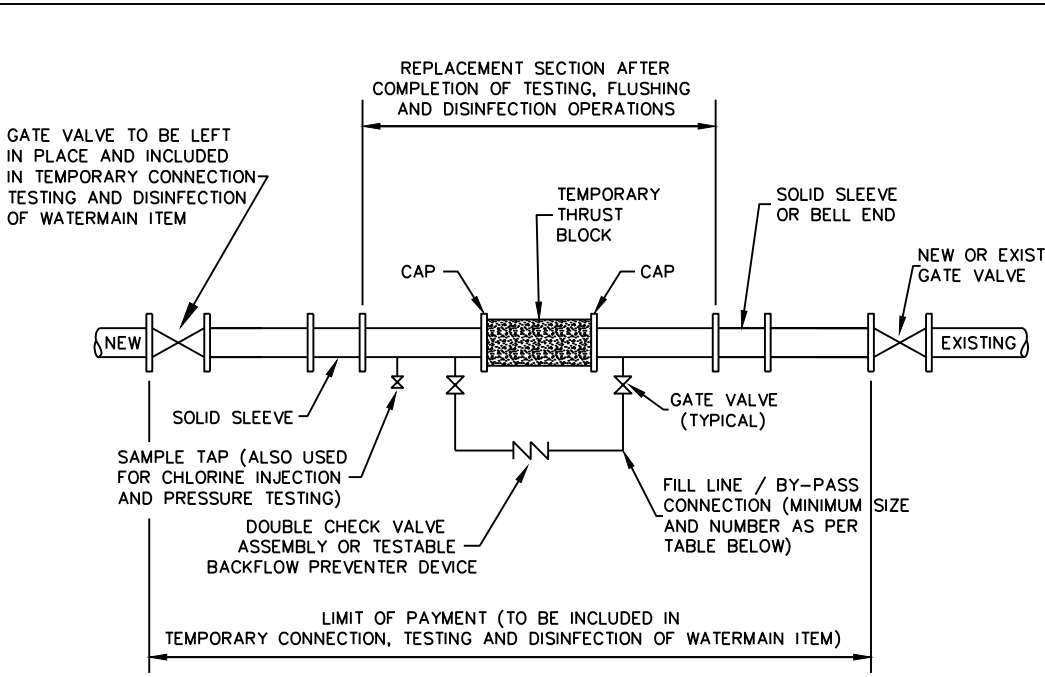
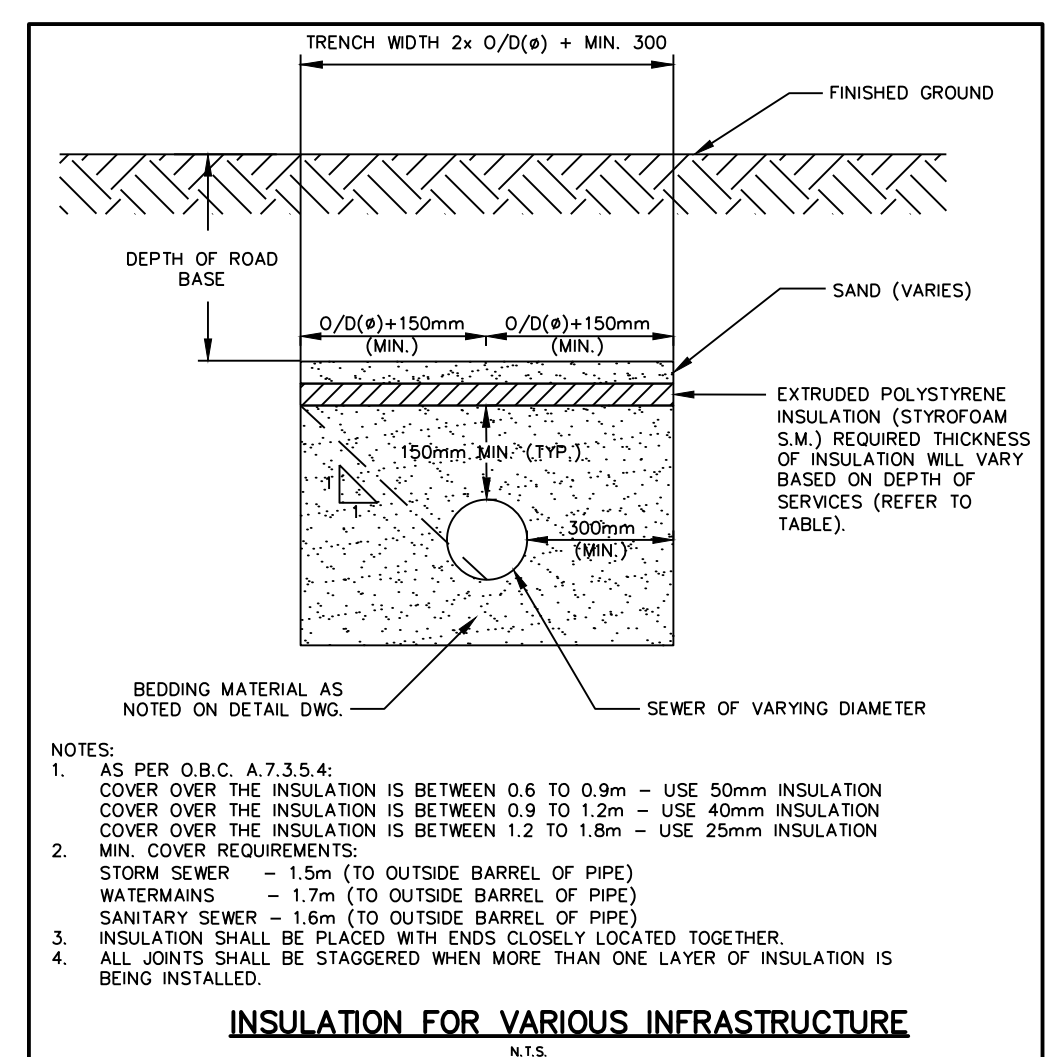
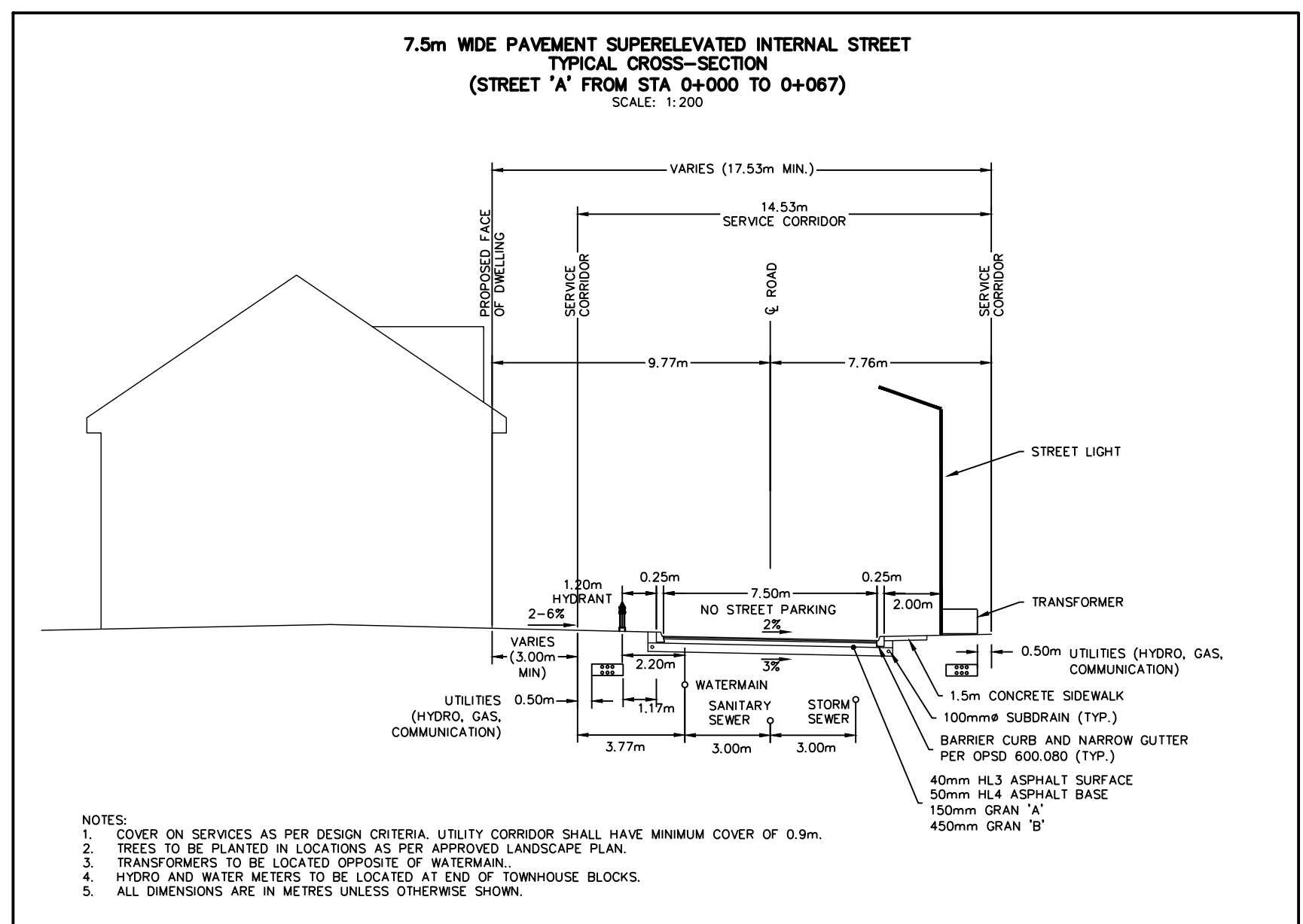
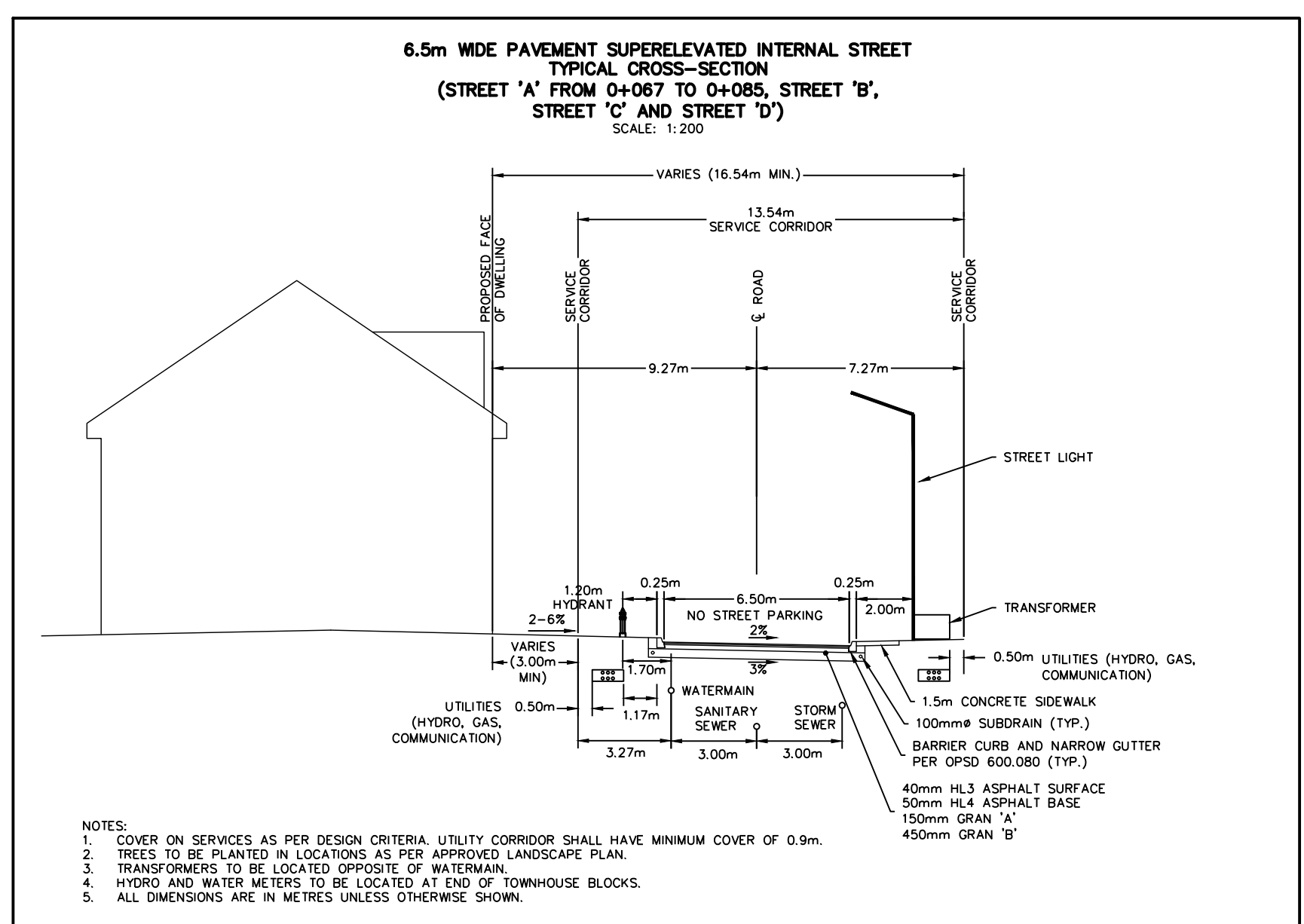
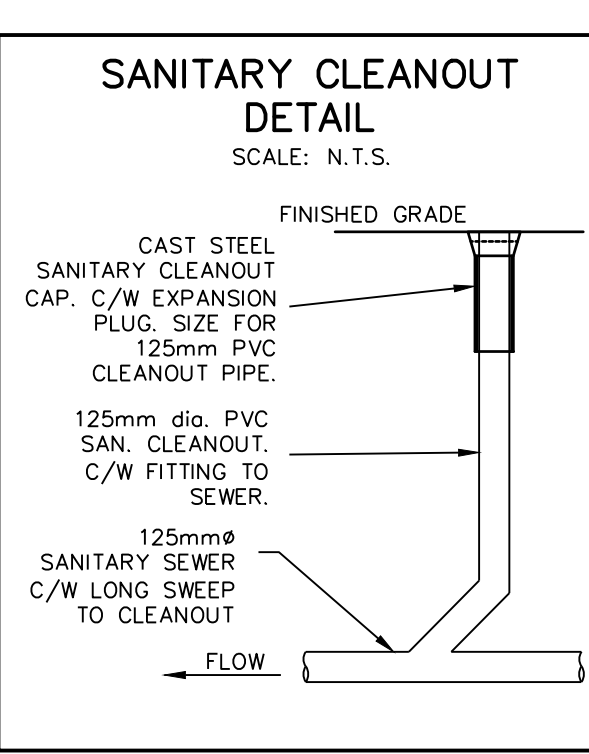
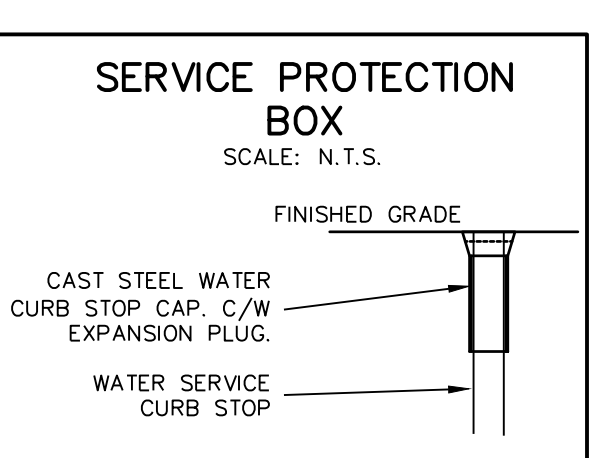
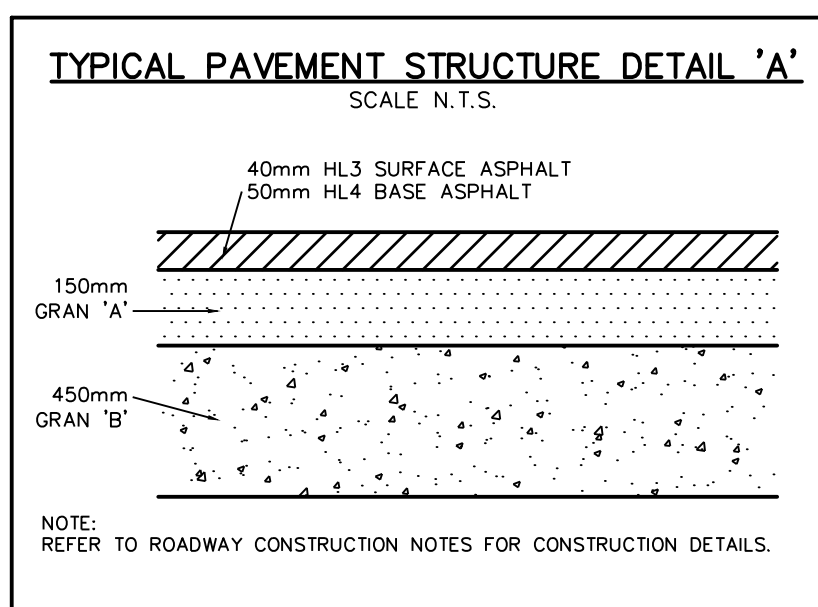
HYDRANT MARKER, MODEL FHV802, 1.5m TALL, WITH A 0.3m X 0.3m REFLECTIVE SIGN WITH A HYDRANT SYMBOL.

B) SERVICES

1. EACH WORKING UNIT SHALL HAVE A SEPARATE 20mm ϕ MIN. TYPE 'K' COPPER OR 25mm ϕ POLY WATER SERVICE. A CURB STOP AND EXTENSION SERVICE BOX AND MAIN STOP MUST BE INSTALLED ON EACH SERVICE USING COMPRESSION JOINT FITTINGS.
2. WATER SERVICE FITTINGS SHALL BE AS FOLLOWS:
-MAIN STOPS ARE TO BE CAMBRIDGE BRASS 301ML SERIES.
-CURB STOPS ARE TO BE SELF DRAINING, CAMBRIDGE BRASS 202NL SERIES.
-SERVICE BOXES ARE TO BE OF ALL IRON/STEEL CONSTRUCTION AND SUPPLIED WITH STAINLESS STEEL SADDLES, CAMBRIDGE BRASS 8403 SERIES.
-IF CURB STOP IS LOCATED IN DRIVEWAY, A VB-5009 4 1/4" ADJUSTABLE PLOW VALVE BOX SHALL BE INSTALLED PER TOWN STANDARDS.
3. CURB STOPS SHALL BE LOCATED AT SERVICE CORRIDOR LIMITS & SUPPLIED WITH A 89mm X 38mm MARKER FROM THE INVERT OF THE SERVICE TO 600mm ABOVE GRADE PAINTED BLUE. A VB-5009 4 1/4" ADJUSTABLE PLOW VALVE BOX SHALL BE INSTALLED PER TOWN STANDARDS IF INSTALLED WITHIN DRIVEWAY.
4. SERVICE CONNECTIONS TO WATERMAINS SHALL BE MADE BY DIRECT TAPPING OR WITH BROAD BAND STAINLESS STEEL SADDLES. SERVICE SADDLES TO BE STAINLESS STEEL 8403 SERIES DOUBLE STRAP & TAPPING SADDLE TO BE CAMBRIDGE BRASS 8403 STAINLESS.
5. SERVICE CONNECTIONS SHALL BE LEFT WITH A TAIL 1m ABOVE FINAL GRADE & CAPPED OR CRIMPED.
6. SERVICE CONNECTIONS WITH RESIDUAL PRESSURES EXCEEDING 550 kPa (80psi) MUST BE EQUIPPED WITH PRESSURE REDUCING DEVICES UPSTREAM OF WATER METER IN FUTURE HOMES.
7. SERVICES TO BE INSTALLED WITH TRACER WIRE TERMINATING UP CURB STOP VALVE. TRACER WIRE TO BE 10 GAUGE, MULTI-STRAND AND PLACED PARALLEL WITH SERVICE. MUNICIPALITY TO CONFIRM TRACER WIRE INSTALLATION AND FUNCTIONALITY VIA CONTINUITY TESTING POST-INSTALLATION.

SANITARY SEWERS

1. MAIN SEWERS SHALL BE PVC SDR 35 WITH RUBBER GASKET CONNECTIONS AND MIN. SIZE OF 200mm ϕ . ALL SANITARY SEWER PIPES SHALL CONFORM TO THE REQUIREMENTS OF CSA AND OPSS.
2. SANITARY SEWER EMBEDMENT SHALL CONFORM WITH OPSS 802.010 USING GRANULAR 'A'.
3. PRECAST SANITARY MANHOLES SHALL CONFORM WITH OPSS 701.010 (1200mm ϕ) WITH HOLLOW RECTANGULAR LADDER RUNGS PER OPSS 405.010. BENCHING SHALL BE PROVIDED IN ALL MANHOLES.
4. MANHOLE COVERS SHALL BE CAMRON D5579 (OR APPROVED EQUAL) AND INSTALLED AS PER MUNICIPAL STANDARD.
5. HOUSE SERVICE CONNECTIONS SHALL BE PVC SDR 28 WITH RUBBER GASKET CONNECTIONS AND SHALL BE 125mm ϕ MIN. SERVICE CONNECTIONS TO HAVE A MINIMUM 2.0% SLOPE.
6. SHOP MANUFACTURED "TEE" CONNECTIONS SHALL BE USED FOR HOUSE SERVICE CONNECTIONS ON 200mm SEWERS.
7. CONNECTION TO MANHOLES SHALL ENTER THE MANHOLE NO HIGHER THAN 600MM ABOVE THE LOWEST INVERT EXCEPT AS OTHERWISE APPROVED BY THE TOWN.
8. FROST STRAPS REQUIRED ON ALL MANHOLES AS PER OPSS 701.100.



REQUIRED FLOW AND OPENINGS TO FLUSH PIPELINES (276 kPa/40 PSI RESIDUAL PRESSURE IN WATERMAIN)

PIPE DIAMETER	FLOW REQUIRED TO PRODUCE 0.76m/s (APPROX) VELOCITY IN MAIN	SIZE OF TAP (mm)			NUMBER OF OPEN 64mm HYDRANT OUTLETS
		25	38	51	
100	6.3	1	-	-	1
150	12.6	-	1	-	1
200	25.2	-	2	1	1
250	37.9	-	3	2	1
300	56.8	-	-	4	2
400	109.9	-	-	4	2

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2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO THIS OFFICE PRIOR TO CONSTRUCTION.
3. THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT.
4. DO NOT SCALE THE DRAWINGS.
5. ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

TEMPORARY BENCHMARKS

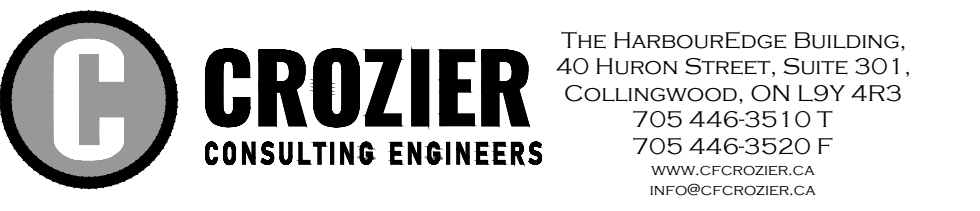
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***ADD REFERENCE TO SURVEY/SOURCE

No.	ISSUE	DATE: MM/DD/YYYY
0	ISSUED FOR 1st SUBMISSION	06/28/2021

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Project
LORA BAY PHASE 4 BLOCK 39
TOWN OF THE BLUE MOUNTAINS

Drawing
CONSTRUCTION NOTES AND
STANDARD DETAILS



Drawn By	L.W.	Design By	L.W.	Project	183-5908
Check By	A.S.	Check By	AS	Scale	AS SHOWN
				Drawing	C108