



Parks Canada Agency

Northern Ontario Field Unit

Agence Parcs Canada

Unité de Gestion de Nord de l'Ontario

PROJECT # 511SSM

POWERHOUSE STRUCTURAL
STABILIZATION PROJECT

SAULT STE. MARIE CANAL NATIONAL
HISTORIC SITE OF CANADA

JUNE 2018

Canada

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CONSULTANT:



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WSP-5P301-15-0001-001 (WSP# 151-06165-14)

GENERAL

- DRAWINGS TO BE READ IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS.
- NOTIFY DEPARTMENTAL REPRESENTATIVE IF ANY DISCREPANCIES ARE FOUND BETWEEN THESE NOTES AND THE SPECIFICATIONS.
- IN CASE OF CONFLICTING INFORMATION BETWEEN CONTRACT DRAWINGS AND SPECIFICATIONS, THE MORE STRINGENT SHALL GOVERN OR CONTRACTOR MUST SEEK CLARIFICATION IN WRITING FROM DEPARTMENTAL REPRESENTATIVE.
- ALL WORK IS TO CONFORM TO LATEST EDITION OF THE NATIONAL BUILDING CODE OF CANADA AND WITH ALL APPLICABLE CODES AND BYLAWS.
- BEFORE PROCEEDING WITH WORK, VERIFY DIMENSIONS SHOWN ON THE DRAWINGS AND REPORT DISCREPANCIES TO THE DEPARTMENTAL REPRESENTATIVE. REFER TO OTHER DRAWINGS FOR LOCATIONS AND DIMENSIONING OF APPURTENANCES NOT SHOWN ON THE STRUCTURAL DRAWINGS. OBTAIN THE DEPARTMENTAL REPRESENTATIVE'S APPROVAL BEFORE MODIFYING WORK TO SUIT EXISTING CONDITIONS WHICH ARE NOT SHOWN ON THE DRAWINGS.
- ALL DIMENSIONS GIVEN ON STRUCTURAL DRAWINGS ARE IN METRIC SYSTEM UNLESS OTHERWISE NOTED. DO NOT SCALE DRAWINGS.
- THE CONTRACTOR SHALL FACILITATE ALL MATERIAL TESTING REQUIRED BY THE DEPARTMENTAL REPRESENTATIVE AND AS OUTLINED IN THE CONTRACT SPECIFICATIONS. CONTRACTOR TO ORGANIZE AND COORDINATE AS REQUESTED.
- THE PROJECT IS LOCATED IN A NATIONAL HISTORIC SITE (NHS) OF CANADA, THEREFORE STANDARDS FOR ENVIRONMENTAL PROTECTION AND FOR VISUAL AESTHETICS OF FINAL PRODUCT SHALL BE OF THE HIGHEST QUALITY STANDARD. CONTRACT LIMITS SHALL BE STRICTLY ADHERED TO AND CONTRACTOR IS TO TAKE SPECIAL CARE TO MINIMIZE DAMAGE, DISRUPTION, AND PROTECT EXISTING FEATURES OF THE NATIONAL PARK. THE DEPARTMENTAL REPRESENTATIVE OR DELEGATE IS TO BE NOTIFIED IMMEDIATELY IF ANY NATURAL OR CULTURAL RESOURCES OF INTEREST ARE LOCATED DURING CONSTRUCTION.
- ALL WORK IS TO BE CONDUCTED IN ACCORDANCE WITH THE ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT.
- THE CONTRACTOR WILL SUBMIT A RISK MANAGEMENT PLAN TO THE DEPARTMENTAL REPRESENTATIVE OR DELEGATE FOR APPROVAL. THE CONTRACTOR SHALL MAINTAIN AND CONSTANTLY UPDATE THE PLAN THROUGHOUT THE PROJECT LIFECYCLE.
- ALL STRUCTURES SHALL BE IN CONFORMANCE WITH THE FOLLOWING DESIGN STANDARDS:
 - ONTARIO BUILDING CODE 2012 (OBC)
 - NATIONAL BUILDING CODE OF CANADA 2015 (NBCC)
 - HANDBOOK OF STEEL CONSTRUCTION (CISC, CSA S16-14)
 - CANCSA A23.3-14 DESIGN OF CONCRETE STRUCTURES
- ALL ELECTRICAL WORK SHALL CONFORM TO THE ONTARIO ELECTRICAL CODE. CONTRACTOR SHALL ARRANGE, AND PAY FOR ALL ELECTRICAL PERMITS AND ELECTRICAL SAFETY AUTHORITY (ESA) INSPECTIONS.
- ALL CONTRACTOR SUBMITTALS SHALL BE DONE IN S.I. UNITS (METRIC).
- THE CONTRACTOR SHALL SUBMIT A PROJECT SPECIFIC HEALTH AND SAFETY PLAN FOR REVIEW PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL ONLY PROCEED WITH CONSTRUCTION UPON ACCEPTANCE OF THE PROJECT SPECIFIC HEALTH AND SAFETY PLAN BY THE DEPARTMENTAL REPRESENTATIVE OR DELEGATE.
- THE CONTRACTOR SHALL SUBMIT A DEMOLITION PLAN FOR REVIEW BY THE DEPARTMENTAL REPRESENTATIVE PRIOR TO SITE REMOVALS. THE CONTRACTOR SHALL ONLY PROCEED WITH CONSTRUCTION UPON ACCEPTANCE OF THE DEMOLITION PLAN BY THE DEPARTMENTAL REPRESENTATIVE OR DELEGATE.
- THE CONTRACTOR SHALL SUBMIT A TEMPORARY CROSSING PLAN FOR REVIEW PRIOR TO COMMENCING CONSTRUCTION FOR ALL STRUCTURES WHERE PUBLIC ACCESS WILL BE IMPACTED DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING PEDESTRIAN TRAFFIC SAFE MEANS OF CROSSING DURING CONSTRUCTION AS THE NHS WILL REMAIN OPEN TO THE PUBLIC.
- THE CONTRACTOR SHALL MAINTAIN THE WORKSITE IN A TIDY CONDITION AND FREE FROM THE ACCUMULATION OF WASTE PRODUCTS AND DEBRIS.
- USE DRAWINGS THAT ARE "ISSUED FOR CONSTRUCTION" AND WHICH ARE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO. CONFIRM WITH THE DEPARTMENTAL REPRESENTATIVE OR DELEGATE TO ENSURE THE MOST CURRENT REVISIONS ARE USED.
- ALL SECTIONS, DETAILS AND STATEMENTS NOTED AS "TYPICAL" APPLY TO LIKE/SIMILAR CONDITIONS.
- THE CONSULTANT AND THE DEPARTMENTAL REPRESENTATIVE, AT TIMES, WILL CONDUCT INSPECTIONS OF THE WORK TO ENSURE GENERAL CONFORMANCE WITH THE DESIGN DRAWINGS. THIS DOES NOT REPLACE THE CONTRACTOR'S RESPONSIBILITY TO IMPLEMENT AND MAINTAIN A QUALITY CONTROL PROGRAM.
- THE CONTRACTOR SHALL PROVIDE FOUR (4) COMPLETE SETS OF AS-BUILT RECORD DRAWINGS. ALL CHANGES ARE TO BE MARKED IN RED AND MUST BE CLEAN AND LEGIBLE.
- NO BURNING IS PERMITTED WITHIN THE NATIONAL HISTORIC SITE.
- THE CONTRACTOR SHALL ERECT SILT FENCING ALONG ALL WATER COURSES DURING CONSTRUCTION.
- THE CONTRACTOR SHALL SUBMIT A SEDIMENT AND EROSION CONTROL PLAN PRIOR TO CONSTRUCTION. CONSTRUCTION WORK CAN COMMENCE ONLY AFTER APPROVAL OF THIS PLAN BY DEPARTMENTAL REPRESENTATIVE OR DELEGATE.
- THE CONTRACTOR SHALL PROVIDE ALL SHOP DRAWINGS IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. ALL SHOP DRAWING SUBJECT TO APPROVAL FROM DEPARTMENTAL REPRESENTATIVE OR DELEGATE.
- ALL WORK WITHIN A 30 METER DISTANCE OF A WATER WAY SHALL ADHERE TO THE FISHERIES ACT. THE CONTRACTOR SHALL SUBMIT A WORK PLAN FOR ALL WORK.
- ALL WORK SHALL CONFORM TO THE ENVIRONMENTAL BASIC IMPACT ANALYSIS (BIA). REFER TO THE CONTRACT SPECIFICATIONS.

MATERIALS

- ALL PROPOSED WORKS SHALL BE CONSTRUCTED WITH NEW MATERIAL ONLY. MATERIALS IDENTIFIED FOR DEMOLITION ARE TO BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF IN STRICT ACCORDANCE WITH APPLICABLE STANDARDS.
- MATERIAL USED FOR CONSTRUCTION SHALL BE FREE OF ANY DEFECTS.
- THE CONTRACTOR SHALL REPAIR AT THEIR COST ANY DAMAGES AS A RESULT OF CONSTRUCTION THAT IS NOT SPECIFIED FOR REMOVAL. ALL REPAIRS MUST BE COMPLETED TO THE SATISFACTION OF THE DEPARTMENTAL REPRESENTATIVE.
- ALL HARDWARE TO BE GALVANIZED (600GM2) UNLESS OTHERWISE NOTED.
- ALL HARDWARE AND FASTENERS SHALL BE AMMONIACAL COPPER QUATERNARY (ACQ) COMPATIBLE.
- HOT-DIP GALVANIZING TO CSA G164-92.
- ALTERNATIVES MAY BE CONSIDERED AFTER CONTRACT AWARD ONLY. SUBMIT PROPOSAL IN WRITING FOR ALTERNATIVE PRODUCTS AND ALLOW FOR RESPONSE TIME OF 7 CALENDAR DAYS FOR DEPARTMENTAL REPRESENTATIVES REVIEW AND APPROVALS.

REMOVALS

- ALL REMOVALS ARE TO BE CARRIED OUT WITH PRECAUTIONS FOR THE SAFETY OF THE PUBLIC AND PARKS CANADA'S EMPLOYEES.
- DEMOLITION WORK SHALL BE CARRIED OUT WITHOUT CAUSING OVERSTRESS OR EXCESSIVE DEFLECTION TO ANY PART OF THE EXISTING WORK WHICH IS TO REMAIN. THE CONTRACTOR IS RESPONSIBLE TO MAKE GOOD ANY DAMAGE CAUSED DURING DEMOLITION.
- THE CONSTRUCTION SITE SHALL REMAIN FREE OF ANY DEBRIS AND / OR GARBAGE.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL DISPOSAL/TIPPING FEES.
- THE CONTRACTOR SHALL DISPOSE OF CONSTRUCTION DEBRIS AT LEGALLY DESIGNATED SITES IN ACCORDANCE WITH APPLICABLE LAWS.

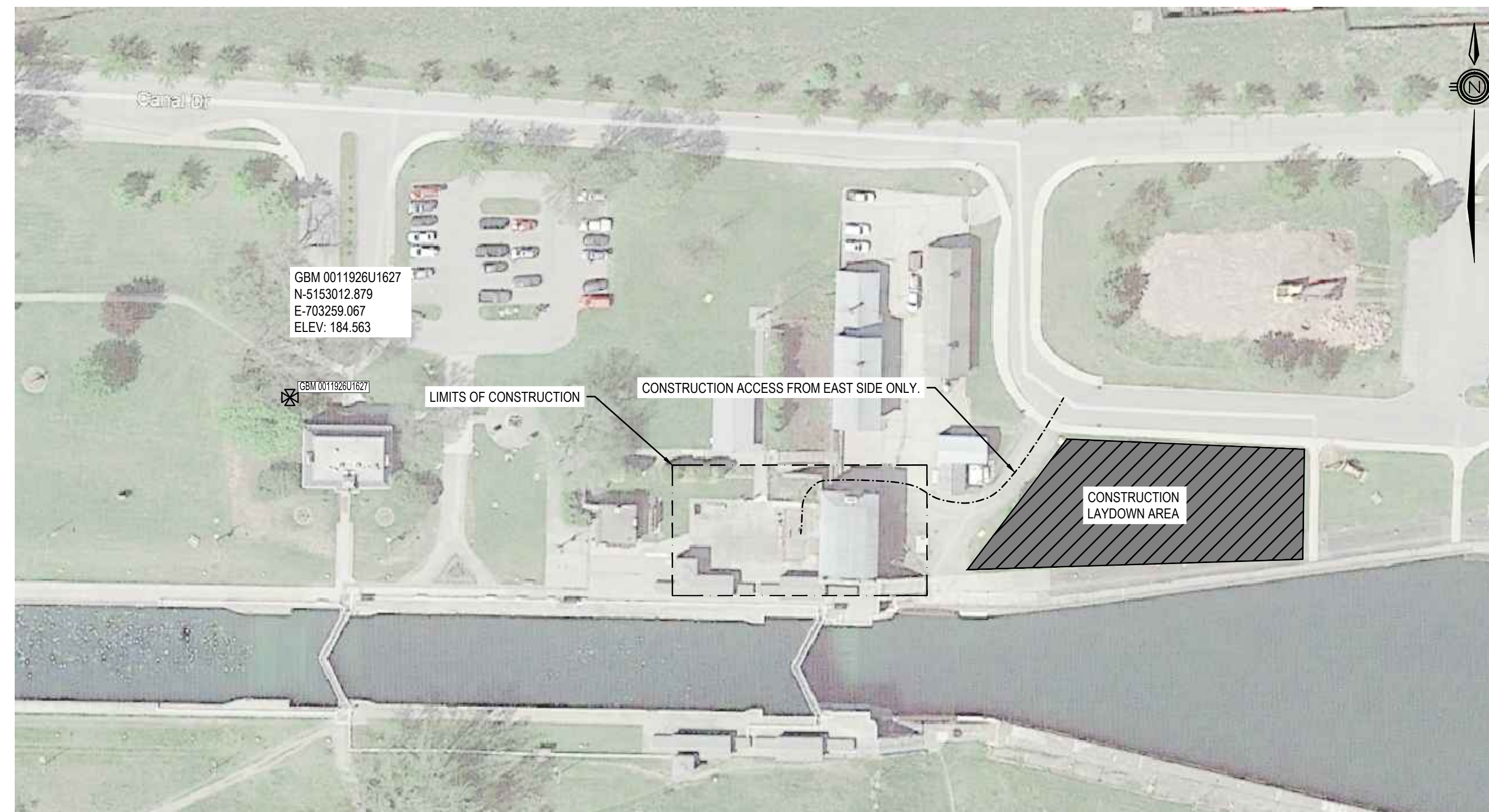
CONSTRUCTION SEQUENCING

- INSTALL GROUNDWATER TREATMENT SYSTEM
- RELOCATE SERVICES UNDER THE STAIRS AS INDICATED
- REMOVE STAIRS AND DRAINAGE TROUGH
- REMOVE BLOCK RETAINING WALL AND STORE BLOCKS AT A PCA DESIGNATED LOCATION ONSITE
- INSTALL TEMPORARY GRAVITY WATER DIVERSION SYSTEM (TO THE APPLICABLE LIMITS)
- REMOVE LIMESTONE VALVE CHAMBER AND CORRESPONDING PIPING
- REMOVE HISTORIC VALVES AND STORE AT A PCA DESIGNATED LOCATION
- INSTALL BRACING ON EXISTING RESERVOIR
- REMOVE RESERVOIR CONCRETE ROOF PANELS
- INSTALL VALVE TOWER BULKHEAD
- REMOVE RESERVOIR BEAMS
- REMOVE RESERVOIR EAST WALL AND PARTIAL SOUTH WALL (SOUTH-EAST CORNER)
- REMOVE RESERVOIR NORTH WALL (PARTIAL)
- REMOVE RESERVOIR FLOOR
- REMOVE SECTION OF WEST RESERVOIR WALL TO FACILITATE NEW PENSTOCK PIPING AND INSTALL SHORING
- CAST NEW CONTEMPORARY VALVE CHAMBER
- INSTALL NEW CONTEMPORARY CONTROL VALVE
- INSTALL STEEL PIPING CONNECTION TO VALVE CHAMBER AND BLIND FLANGE.

NOTE: THIS CONSTRUCTION SEQUENCE IS A GUIDE ONLY AND IS NOT MEANT TO CONTROL THE CONTRACTOR'S SEQUENCING OF THE WORK. THE CONTRACTOR SHALL SUBMIT A WORK PLAN AND PROPOSED CONSTRUCTION SEQUENCING FOR REVIEW PRIOR TO THE WORK.

LEGEND

- EXISTING GRAVEL BOUNDARY
- EXISTING HANDRAILING
- EXISTING EDGE OF CONCRETE
- EXISTING BURIED BELL UTILITY
- EXISTING BURIED HYDRO
- EXISTING BURIED WATER
- SA --- EXISTING BURIED SANITARY
- ST --- EXISTING BURIED STORM
- UG --- EXISTING BURIED UTILITY
- [Pattern] EXISTING CONCRETE
- [Pattern] EXISTING INTERLOCKING BRICK
- [Pattern] EXISTING ACCESS HATCH
- [Pattern] EXISTING GRAVEL
- [Pattern] EXISTING BUILDING
- [Symbol] EXISTING SIGNS
- [Symbol] EXISTING LIGHT POLE
- [Symbol] EXISTING LIGHT FIXTURE
- [Symbol] EXISTING SHRUB
- [Symbol] EXISTING TREE
- [Symbol] EXISTING BOLLARD
- [Symbol] EXISTING PIEZOMETER
- [Symbol] EXISTING DECORATIVE ROCK
- [Symbol] EXISTING SANITARY MANHOLE
- [Symbol] EXISTING STORM MANHOLE
- [Symbol] EXISTING CATCHBASIN
- [Symbol] EXISTING WATER WELL
- [Symbol] EXISTING FIRE HYDRANT
- [Symbol] TEMP. BENCHMARK
- [Symbol] EXISTING ELECTRICAL HANDHOLE
- [Symbol] EXISTING HANDHOLE
- [Symbol] CONTROL POINT
- PROPOSED TEMPORARY FENCING
- PROPOSED BURIED BELL UTILITY
- UG --- PROPOSED BURIED UTILITY
- U/G HYD --- PROPOSED BURIED HYDRO
- [Pattern] PROPOSED CONCRETE



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KEY PLAN:

SAULT STE. MARIE, ONTARIO

Legends:

NEW CONSTRUCTION

- [Black Box] PROPOSED / TO BE PROVIDED
- [Grey Box] EXISTING / TO REMAIN

REMOVALS

- [Black Box] EXISTING / TO BE REMOVED
- [Grey Box] EXISTING / TO REMAIN

No.	Date	Description	Drawn by Dessiné par	Approved Approuvé
D	22JUN18	ISSUED FOR TENDER	VARIES	D.SPACEK
C	29MAY18	DRAFT ISSUED FOR TENDER	VARIES	D.SPACEK
B	26MAR18	99% REVIEW	VARIES	D.SPACEK
A	12FEB18	66% REVIEW	VARIES	D.SPACEK

Revision / Révision	
A	Detail number / Numéro de détail
B	Sheet number / Numéro de la feuille
Linear dimensions in millimetres / Dimensions linéaires en millimètres	

Consultant's Name / Nom de l'expert-conseil

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WSP SP201-15-0201-001 (WSP# 151-08185-14)

Project title / Titre du projet

POWERHOUSE STRUCTURAL STABILIZATION PROJECT

Drawing title / Titre du dessin

GENERAL NOTES

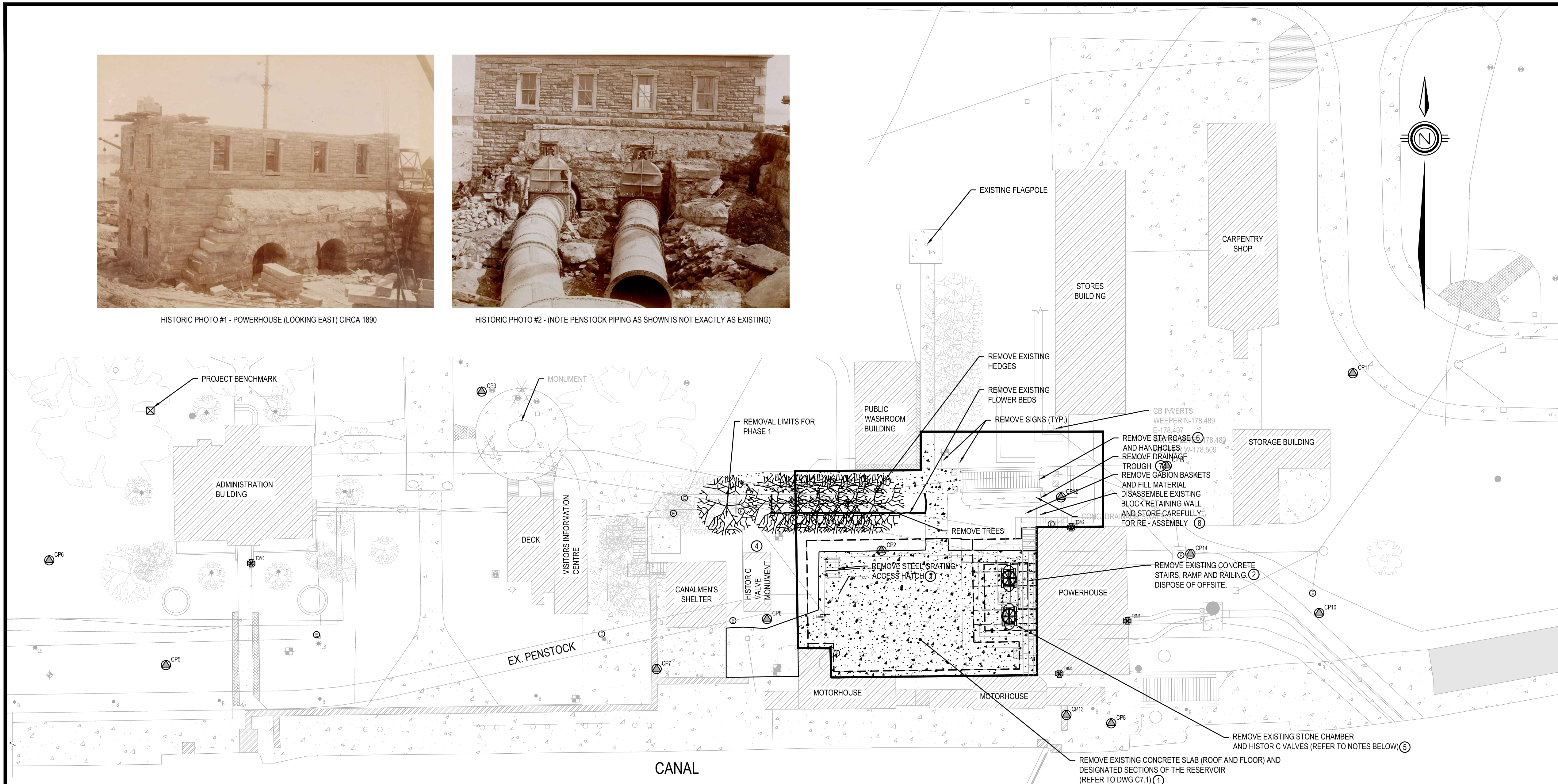
Designed by / Concept par M.PILON	Date JUNE 22 2018
Drawn by / Dessiné par T.PILON	Date JUNE 22 2018
Checked by / Vérifié par D.SPACEK	Date JUNE 22, 2018
Approved by / Approuvé par D.SPACEK	Date JUNE 22, 2018
Project No./N° du projet 511SSM	Scale/Echelle --
Drawing Set No./N° de série du dessin -	Sheet No./N° de la feuille C1.1



HISTORIC PHOTO #1 - POWERHOUSE (LOOKING EAST) CIRCA 1890



HISTORIC PHOTO #2 - (NOTE PENSTOCK PIPING AS SHOWN IS NOT EXACTLY AS EXISTING)



GENERAL REMOVALS NOTES

1. ALL REMOVALS ARE TO BE COMPLETED WITH REFERENCE TO THE CONTRACT SPECIFICATIONS.
2. ALL UTILITIES ARE TO BE TEMPORARILY RELOCATED UNDER THIS CONTRACT. REFER TO THE TEMPORARY UTILITIES PLAN.
3. REMOVE AND STORE HISTORIC VALVES AT PCA DESIGNATED LOCATION. HANDLE EXISTING VALVES WITH EXTREME CARE AS THEY ARE CLASSIFIED AS A HISTORICAL COMPONENT AND WILL BE REUSED IN A LATER CONTRACT.
4. STORE ALL STONE FROM VALVE CHAMBER AT PCA DESIGNATED LOCATION.
5. STORE DISASSEMBLED BLOCK RETAINING WALL FOR RE-USE IN FUTURE CONTRACT AT PCA DESIGNATED LOCATION.
6. STORE ALL REMOVED SIGNAGE FOR HISTORIC VALVE AT A PCA DESIGNATED LOCATION.
7. SALVAGE EXISTING CONCRETE SLAB FOR MONUMENT FOR REUSE IN RELOCATED INSTALLATION (SEE PHOTO FOR ORIGINAL CONSTRUCTION).
8. TAGGING OF BLOCK WALL BLOCKS NOT REQUIRED.

PHOTO REFERENCE	DESCRIPTION
①	REMOVE CONCRETE SLABS (ROOF OF RESERVOIR).
②	REMOVE CONCRETE STAIRS, RAMP AND RAILING OVER VALVE CHAMBER.
③	REMOVE STEEL GRATING AND ACCESS HATCH OVER RESERVOIR.
④	HISTORIC VALVE MONUMENT (SHOWN FOR REFERENCE).
⑤	VALVES LOCATION.
⑥	REMOVE CONCRETE STAIRS (REFER TO UTILITIES PLANS (C3.1/3.2) FOR DETAILS ON UTILITIES UNDER THE STAIRS).
⑦	REMOVE DRAINAGE TROUGH (EXISTING)
⑧	DISASSEMBLE EXISTING BLOCK WALL.
⑨	EXISTING HISTORIC VALVE MONUMENT PAD REINFORCING.



EXISTING HISTORIC VALVE MONUMENT PAD REINFORCING - PHOTO #8 (SHOWN FOR REFERENCE)



CURRENT CONDITIONS - PHOTO #1



CURRENT CONDITIONS - PHOTO #2



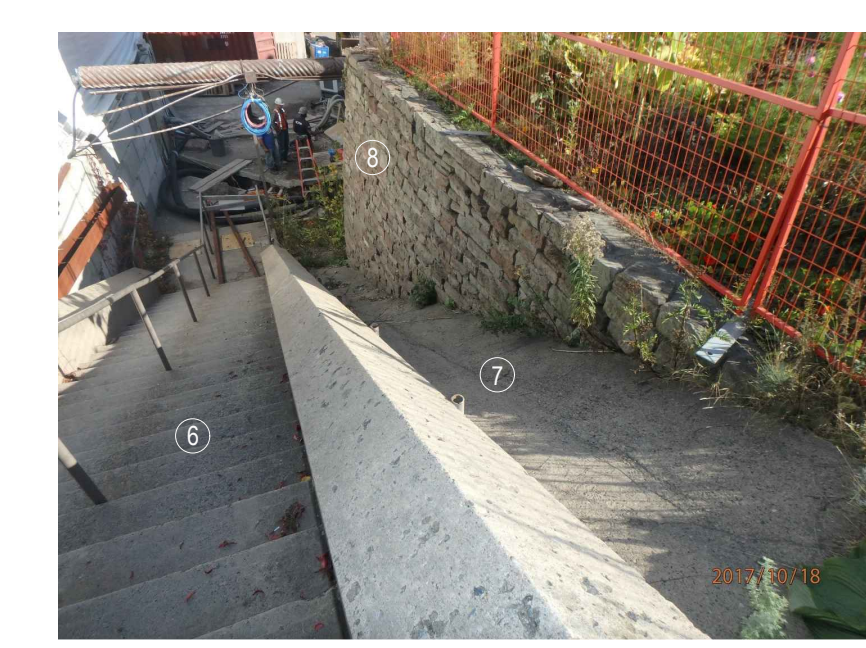
CURRENT CONDITIONS - PHOTO #3



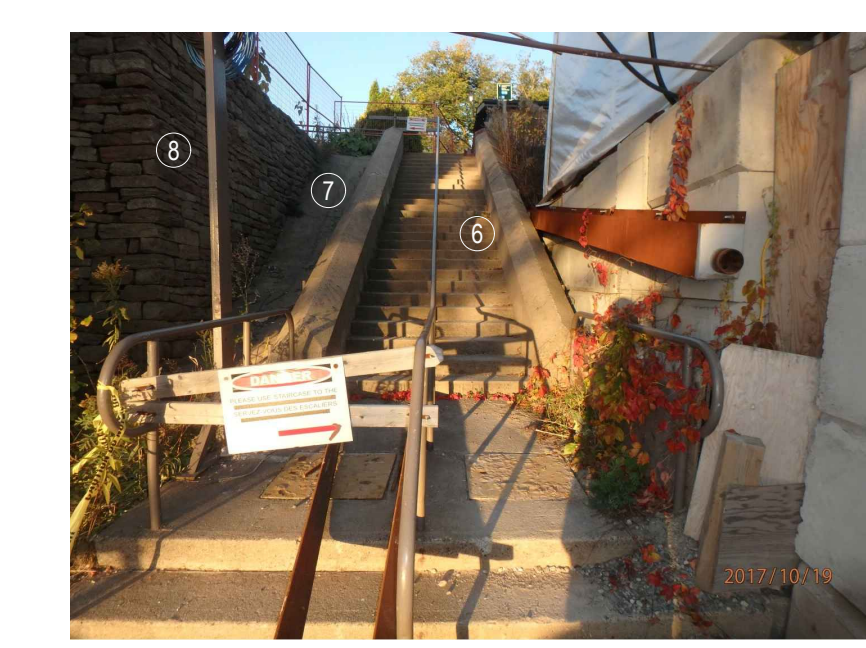
CURRENT CONDITIONS - PHOTO #4 (HISTORIC VALVE MONUMENT) (SHOWN FOR REFERENCE)



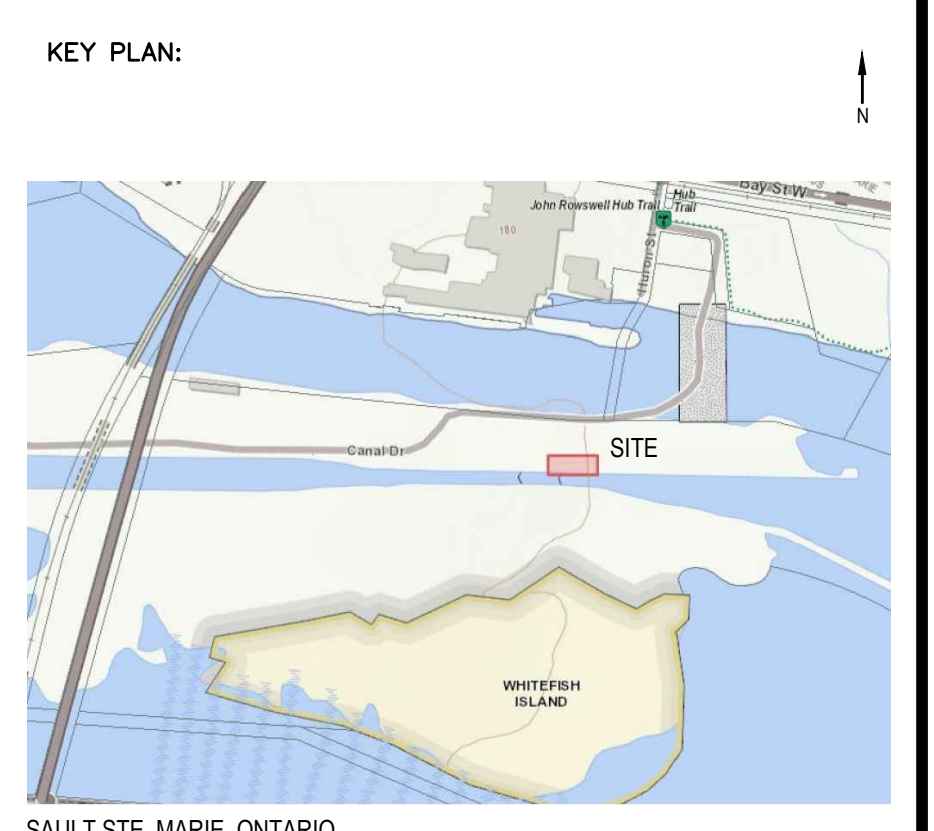
CURRENT CONDITIONS - PHOTO #5



CURRENT CONDITIONS - PHOTO #6



CURRENT CONDITIONS - PHOTO #7



SAULT STE. MARIE, ONTARIO

Legends:

NEW CONSTRUCTION

- PROPOSED / TO BE PROVIDED
- EXISTING / TO REMAIN

REMOVALS

- EXISTING / TO BE REMOVED
- EXISTING / TO REMAIN

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Linear dimensions in millimetres / Dimensions linéaires en millimètres

Consultant's Name / Nom de l'expert-conseil
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D. M. SPACEK
 LICENSED PROFESSIONAL ENGINEER
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 June 22, 2018

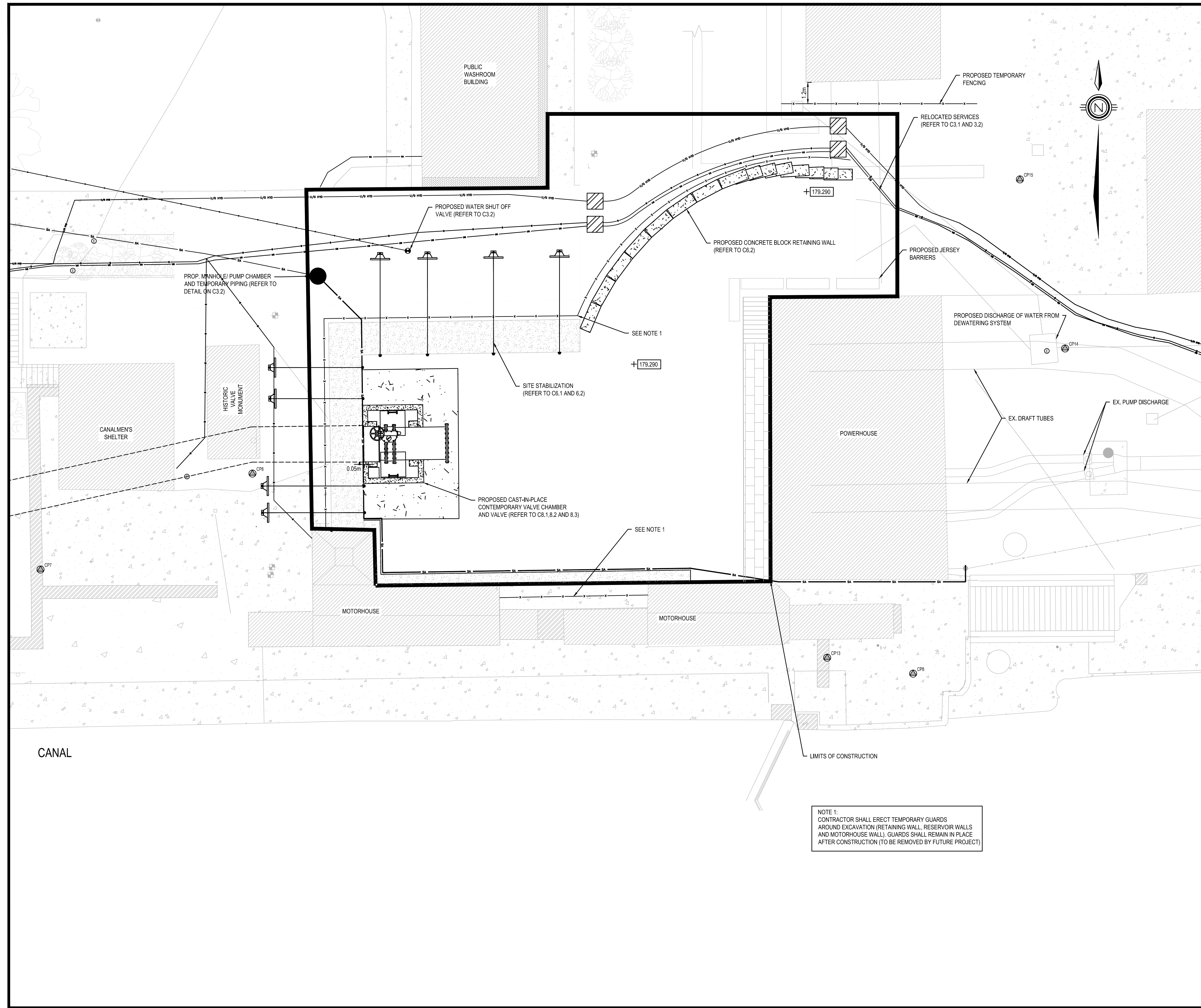
Project title / Titre du projet

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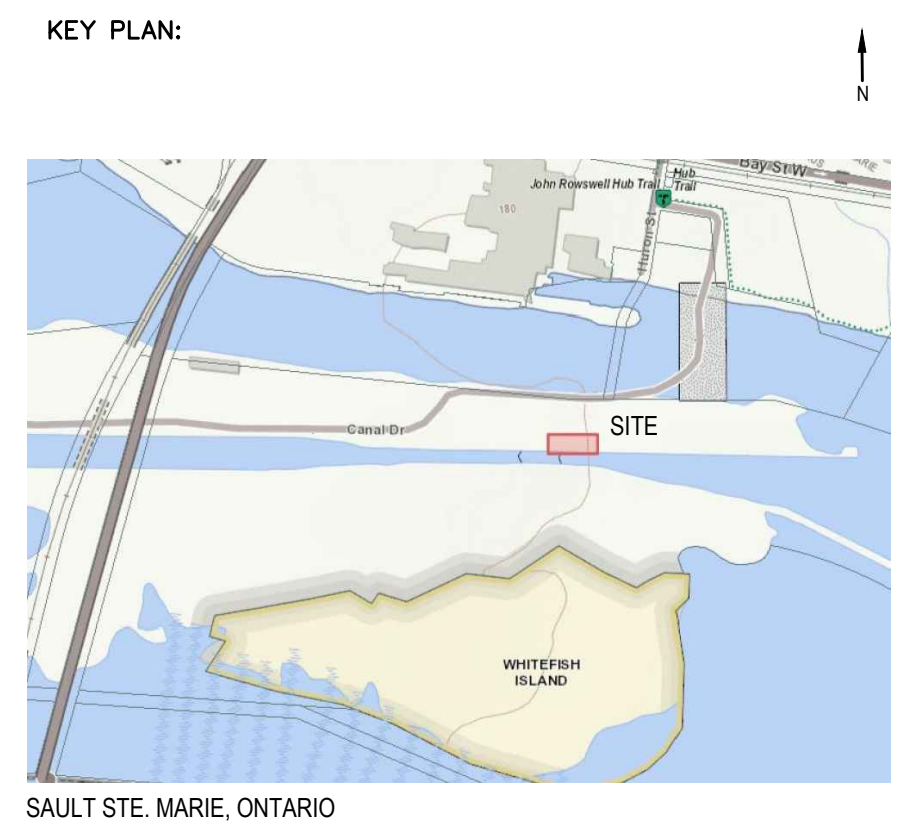
Drawing title / Titre du dessin

SITE PLAN REMOVALS

Designed by / Concept par M.PILON	Date
Drawn by / Dessiné par N.RUSSELL	Date
Checked by / Vérifié par D.SPACEK	Date JUNE 22, 2018
Approved by / Approuvé par D.SPACEK	Date JUNE 22, 2018
Project No. / N° du projet 511SSM	Scale / Echelle 1:250
Drawing Set No. / N° de série du dessin	Sheet No. / N° de la feuille C2.1



NOTE 1:
CONTRACTOR SHALL ERECT TEMPORARY GUARDS AROUND EXCAVATION (RETAINING WALL, RESERVOIR WALLS AND MOTORHOUSE WALL). GUARDS SHALL REMAIN IN PLACE AFTER CONSTRUCTION (TO BE REMOVED BY FUTURE PROJECT)



- Legends:
- NEW CONSTRUCTION**
- PROPOSED / TO BE PROVIDED
 - EXISTING / TO REMAIN
- REMOVALS**
- EXISTING / TO BE REMOVED
 - EXISTING / TO REMAIN

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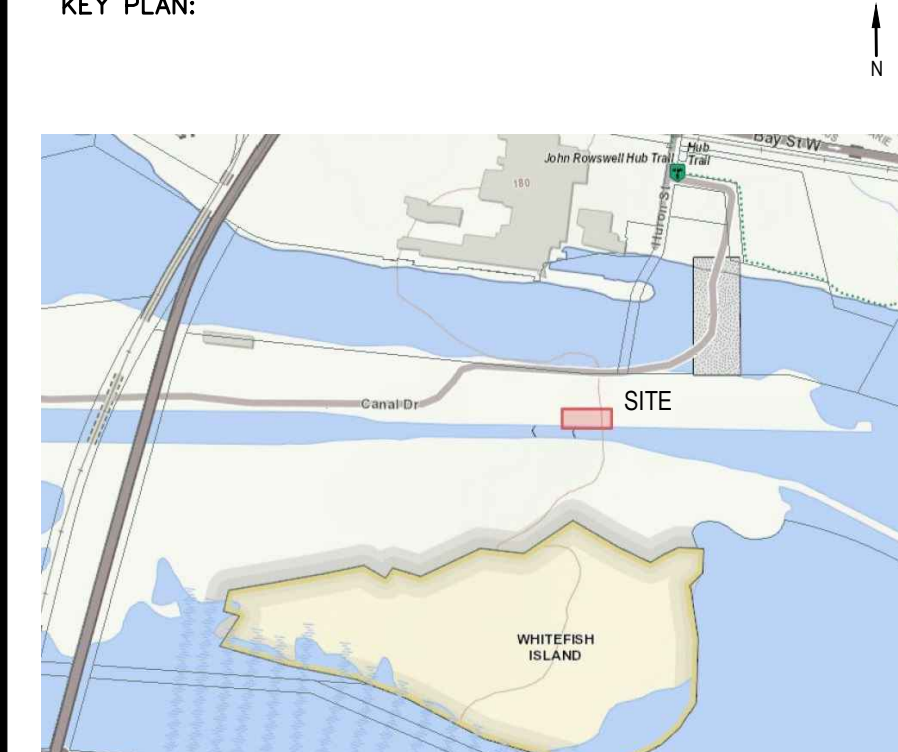
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SITE PLAN PROPOSED

Designed by / Concept par M.PILON	Date
Drawn by / Dessiné par N.RUSSELL	Date
Checked by / Vérifié par D.SPACEK	Date JUNE 22, 2018
Approved by / Approuvé par D.SPACEK	Date JUNE 22, 2018
Project No. / N° du projet 511SSM	Scale / Échelle 1:100
Drawing Set No. / N° de série du dessin	Sheet No. / N° de la feuille C2.2

KEY PLAN:



SAULT STE. MARIE, ONTARIO

Legends:

- NEW CONSTRUCTION**
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 - EXISTING / TO REMAIN
- REMOVALS**
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B	Sheet number / B Numéro de la feuille

Consultant's Name / Nom de l'expert-conseil: **wsp**

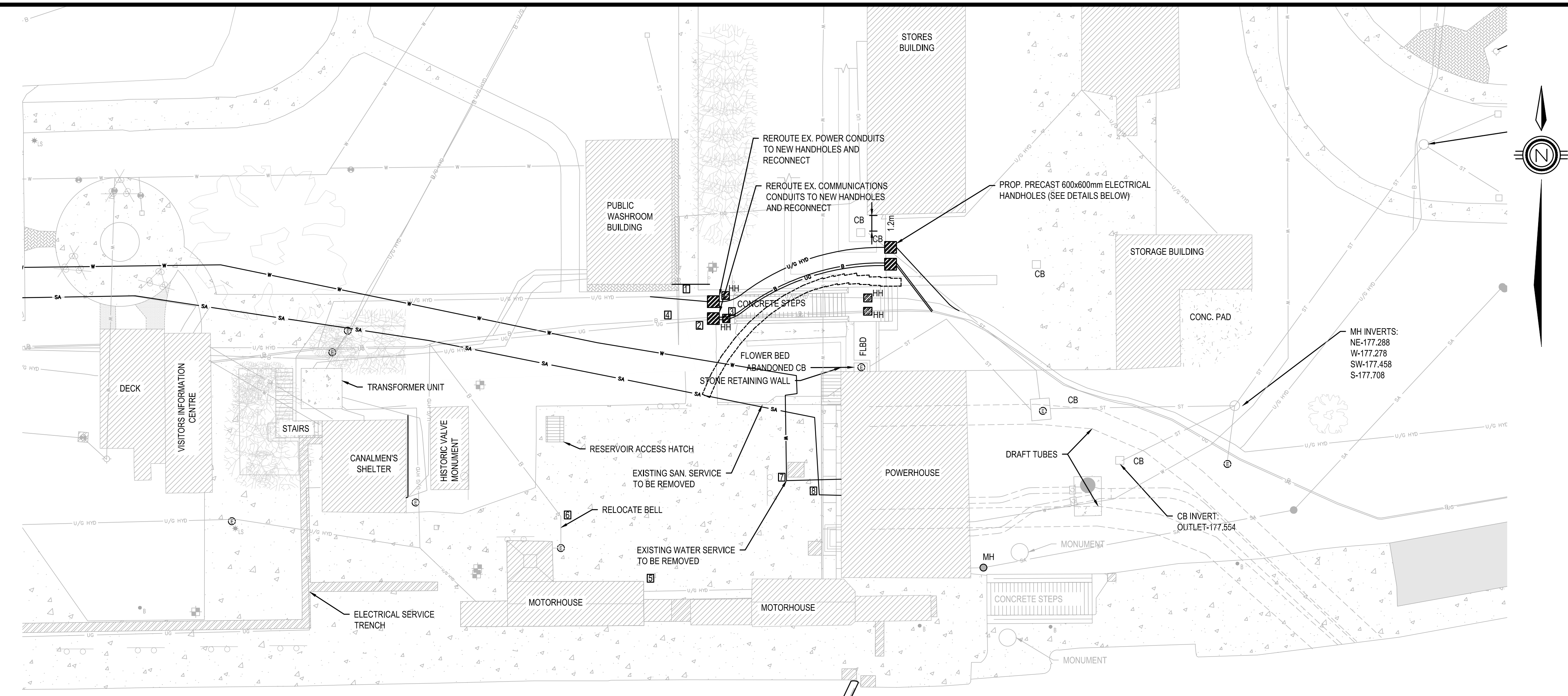
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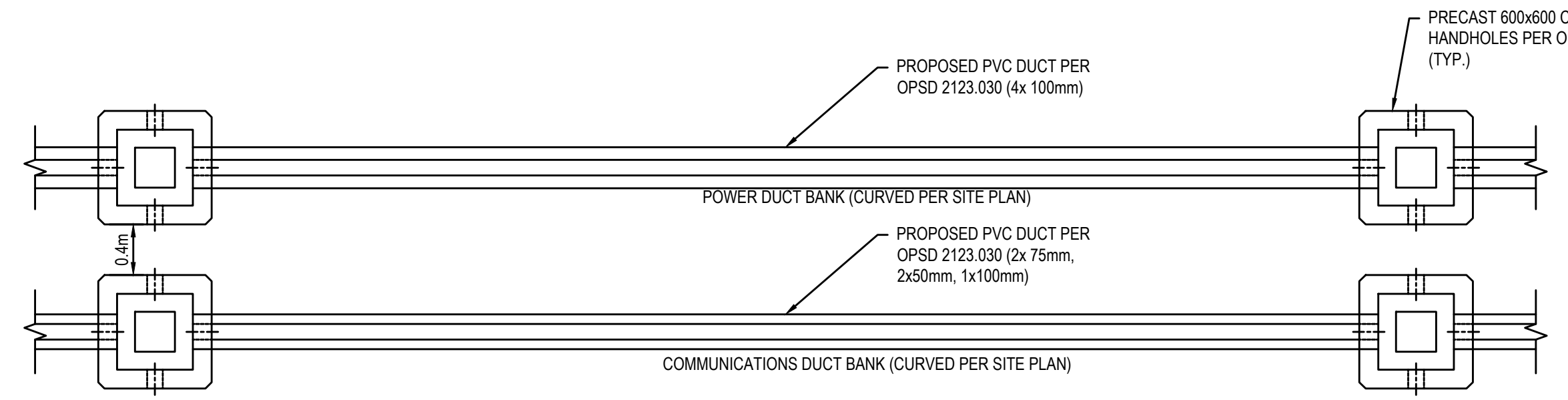
Project title / Titre du projet: **POWERHOUSE STRUCTURAL STABILIZATION PROJECT**

Drawing title / Titre du dessin: **SERVICING AND UTILITY PLAN**

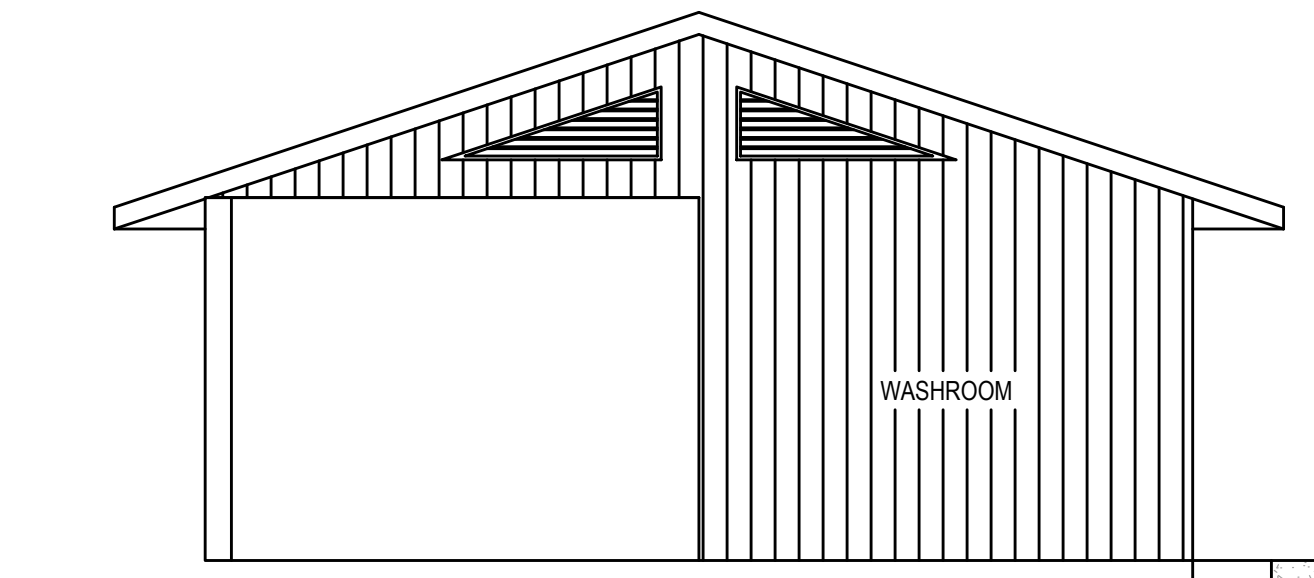
Designed by / Concept par: D.SPACEK	Date
Drawn by / Dessiné par: N.RUSSELL	Date
Checked by / Vérifié par: D.SPACEK	Date: JUNE 22, 2018
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Project No. / N° du projet: 511SSM	Scale / Echelle: 1:200
Drawing Set No. / N° de série du dessin	Sheet No. / N° de la feuille: C3.1



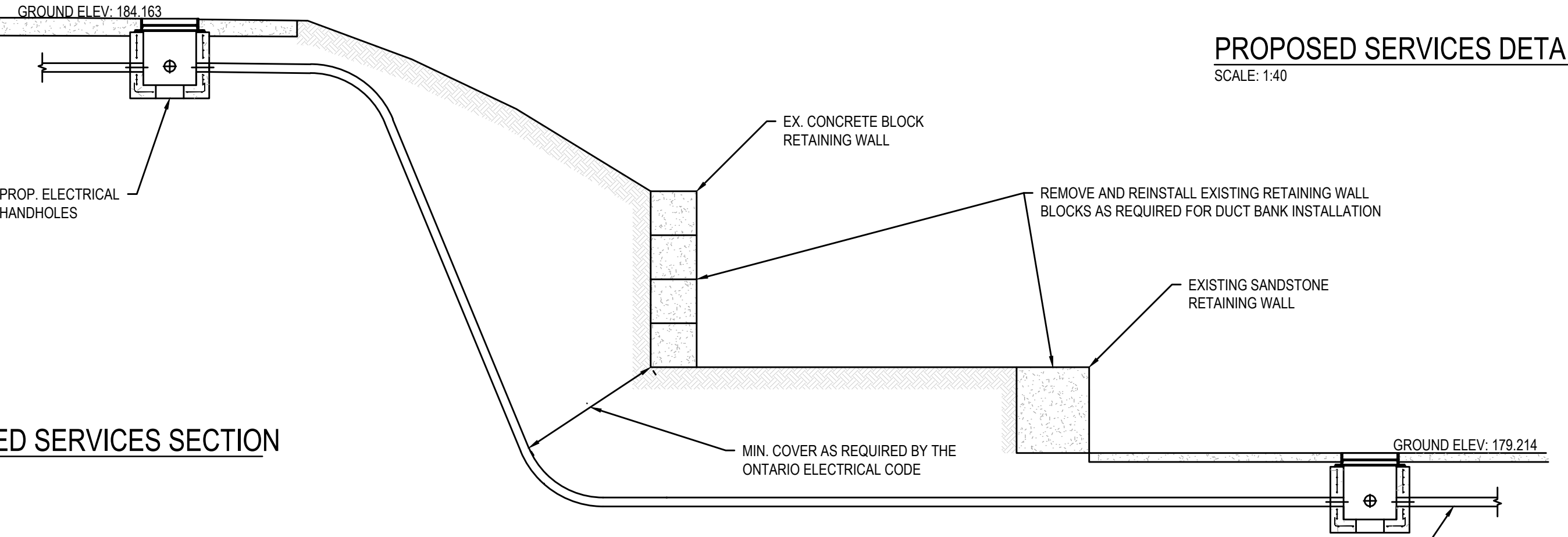
ITEM	TYPE	DESCRIPTION
1	HYDRO	HYDRO UNDER STAIRS
2	HYDRO	HYDRO UNDER STAIRS
3	U/G	U/G UNDER STAIRS
4	BELL	BELL UNDER STAIRS
5	HYDRO	HYDRO TO MOTORHOUSE 2W
6	BELL	BELL TO MOTORHOUSE 2W
7	WATER SERVICE	WATER TO POWERHOUSE
8	SAN. SERVICE	SAN. TO POWERHOUSE



PROPOSED SERVICES DETAIL
SCALE: 1:40



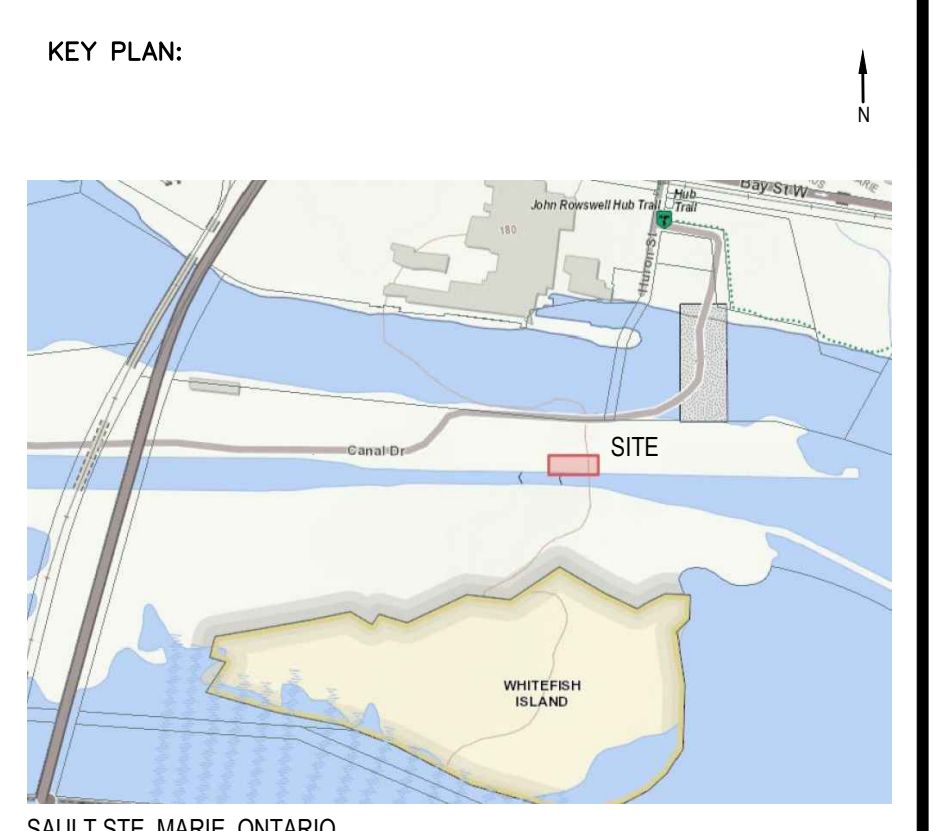
PROPOSED SERVICES SECTION
SCALE: 1:50



SERVICES SHOWN ARE FROM EXISTING DRAWINGS. THE EXACT LOCATION MAY VARY. CONTRACTOR SHALL OBTAIN LOCATES (PUBLIC/PRIVATE) PRIOR TO WORK. WHERE SERVICES OR UTILITIES CANNOT BE FOUND BY LOCATES, CONTRACTOR SHALL HAND DIG TO CONFIRM EXACT LOCATIONS.

ASSUMED BEDROCK ELEV: 177.863

ASSUMED BEDROCK ELEV: 175.384



SAULT STE. MARIE, ONTARIO

- Legends:**
- NEW CONSTRUCTION**
- PROPOSED / TO BE PROVIDED
 - EXISTING / TO REMAIN
- REMOVALS**
- EXISTING / TO BE REMOVED
 - EXISTING / TO REMAIN

No.	Date	Description	Drawn by / Dessiné par	Approved / Approuvé
D	22JUN18	ISSUED FOR TENDER	VARIES	D.SPACEK
C	29MAY18	DRAFT ISSUED FOR TENDER	VARIES	D.SPACEK
B	26MAR18	99% REVIEW	VARIES	D.SPACEK
A	12FEB18	66% REVIEW	VARIES	D.SPACEK

Revision / Révision	
A	Detail number / A Numéro de détail
B	Sheet number / B Numéro de la feuille

Consultant's Name / Nom de l'expert-conseil

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D. M. SPACEK
LICENSED PROFESSIONAL ENGINEER
JUNE 22, 2018
PROVINCE OF ONTARIO

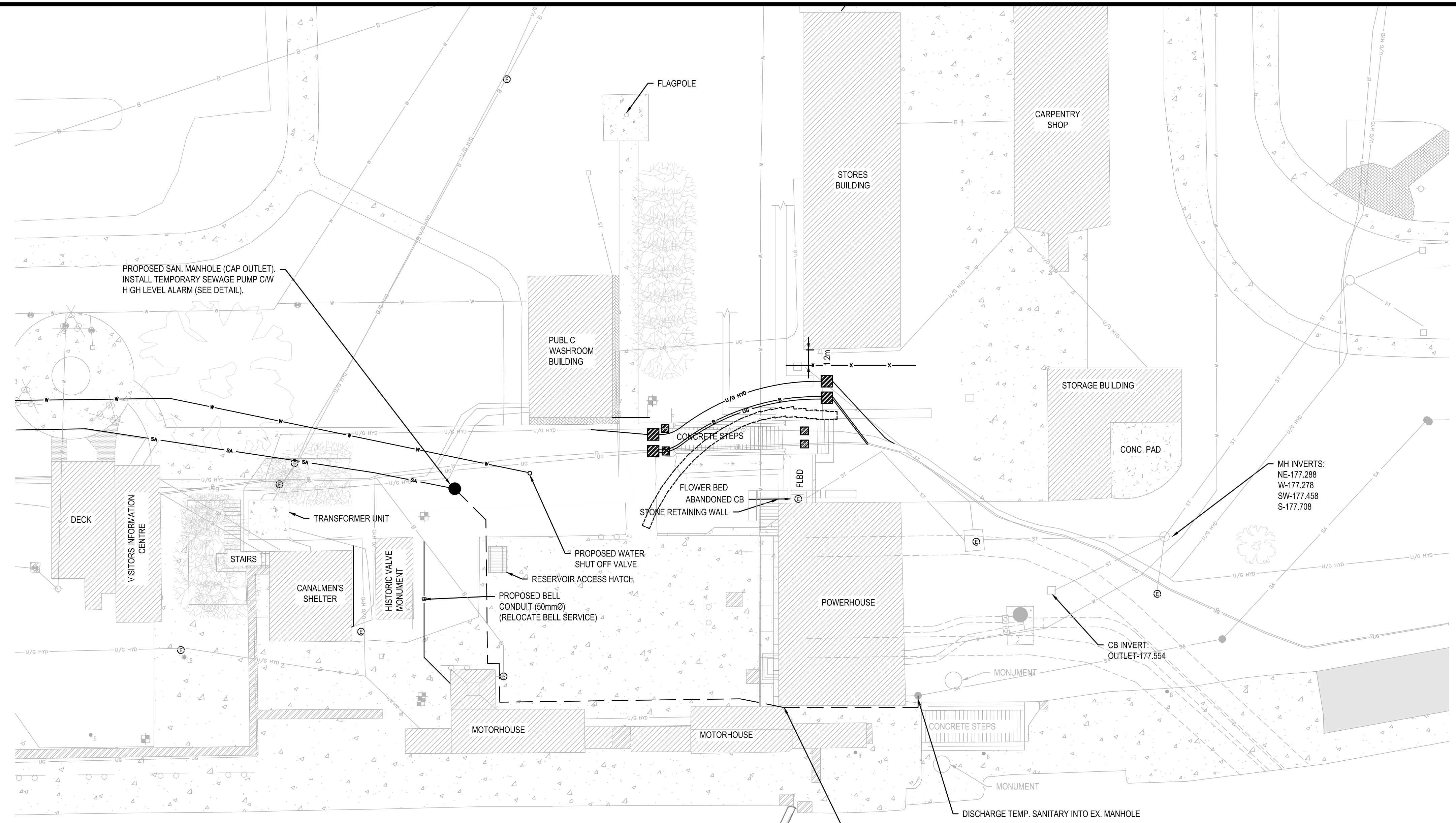
Project title / Titre du projet

POWERHOUSE STRUCTURAL STABILIZATION PROJECT

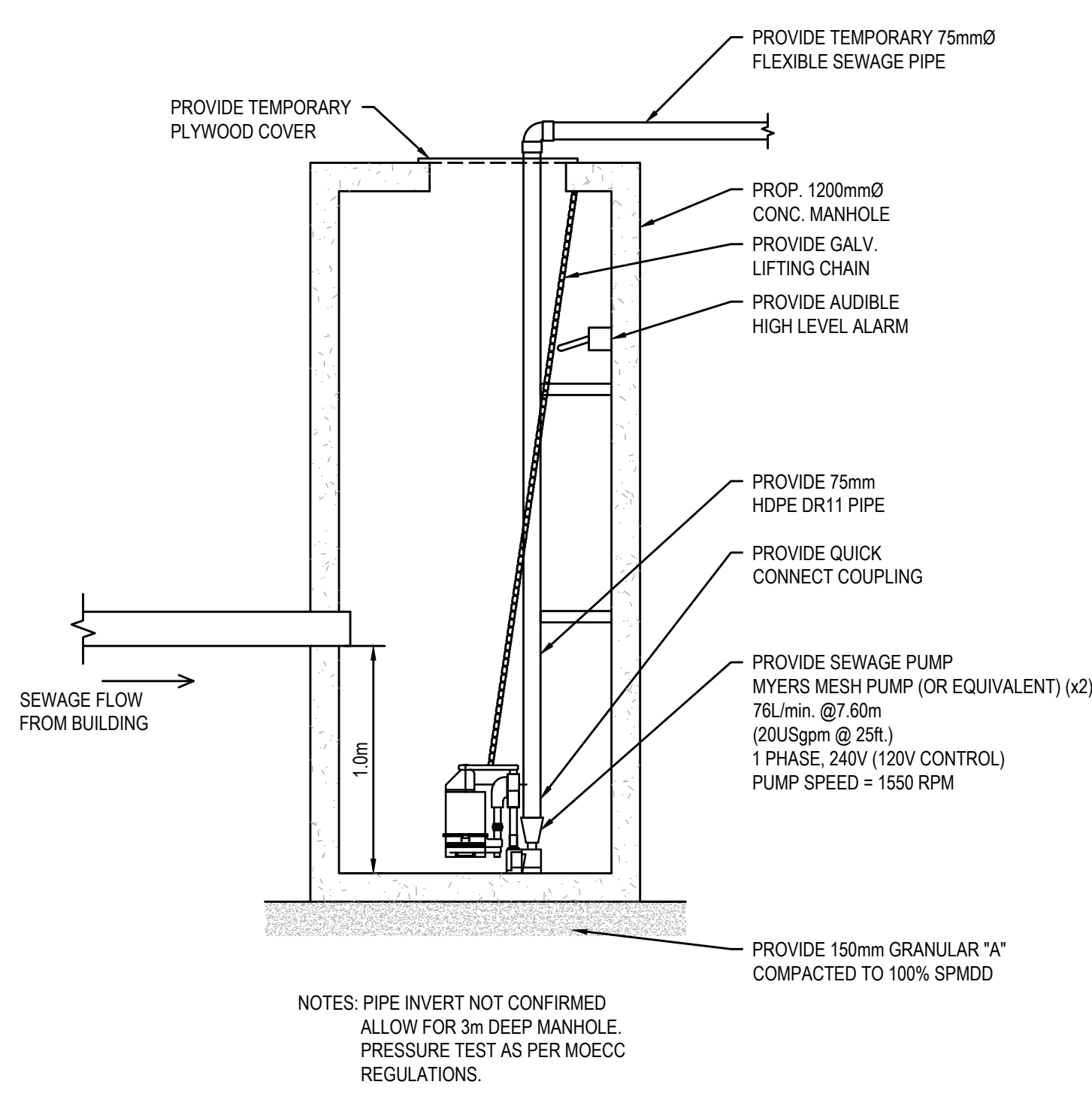
Drawing title / Titre du dessin

TEMPORARY UTILITY PLAN

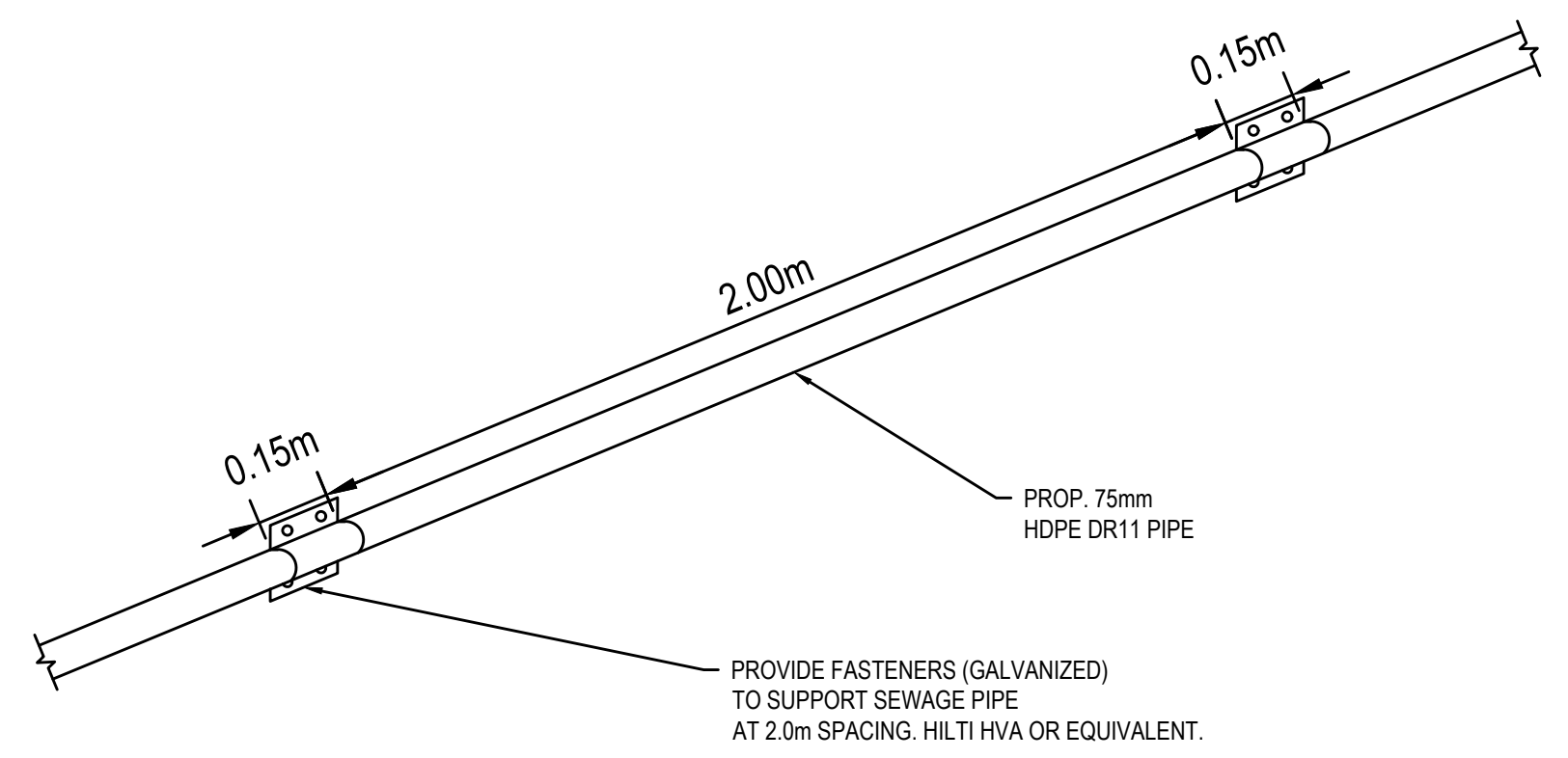
Designed by / Conçeut par D.SPACEK	Date
Drawn by / Dessiné par N. RUSSELL	Date
Checked by / Vérifié par D.SPACEK	Date JUNE 22, 2018
Approved by / Approuvé par D.SPACEK	Date JUNE 22, 2018
Project No. / N° du projet 511SSM	Scale / Echelle 1:250
Drawing Set No. / N° de série du dessin	Sheet No. / N° de la feuille C3.2



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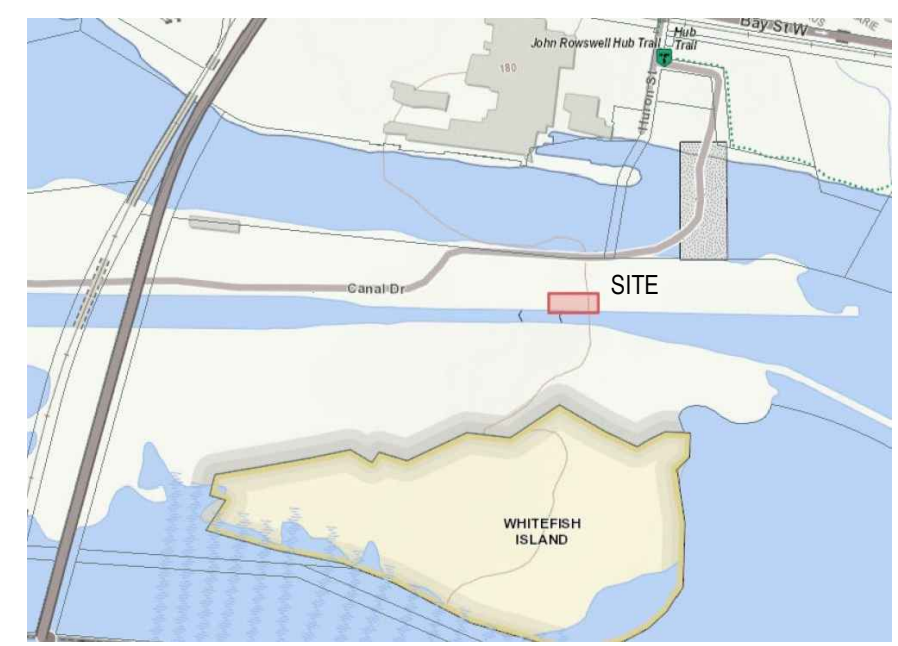


TEMPORARY SANITARY MANHOLE
SCALE: 1:25



TEMPORARY SEWAGE FORCEMAIN SUPPORTS
SCALE: 1:15

KEY PLAN:



SAULT STE. MARIE, ONTARIO

Legends:

NEW CONSTRUCTION

- PROPOSED / TO BE PROVIDED
- EXISTING / TO REMAIN

REMOVALS

- EXISTING / TO BE REMOVED
- EXISTING / TO REMAIN

No.	Date	Description	Drawn by / Dessiné par	Approved / Approuvé
D	22JUN18	ISSUED FOR TENDER	VARIABLES	D.SPACEK
C	29MAY18	DRAFT ISSUED FOR TENDER	VARIABLES	D.SPACEK
B	26MAR18	99% REVIEW	VARIABLES	D.SPACEK
A	12FEB18	66% REVIEW	VARIABLES	D.SPACEK

Revision / Révision	
A	Detail number / Numéro de détail
B	Sheet number / Numéro de la feuille
Linear dimensions in millimetres / Dimensions linéaires en millimètres	

Consultant's Name / Nom de l'expert-conseil: **wsp**

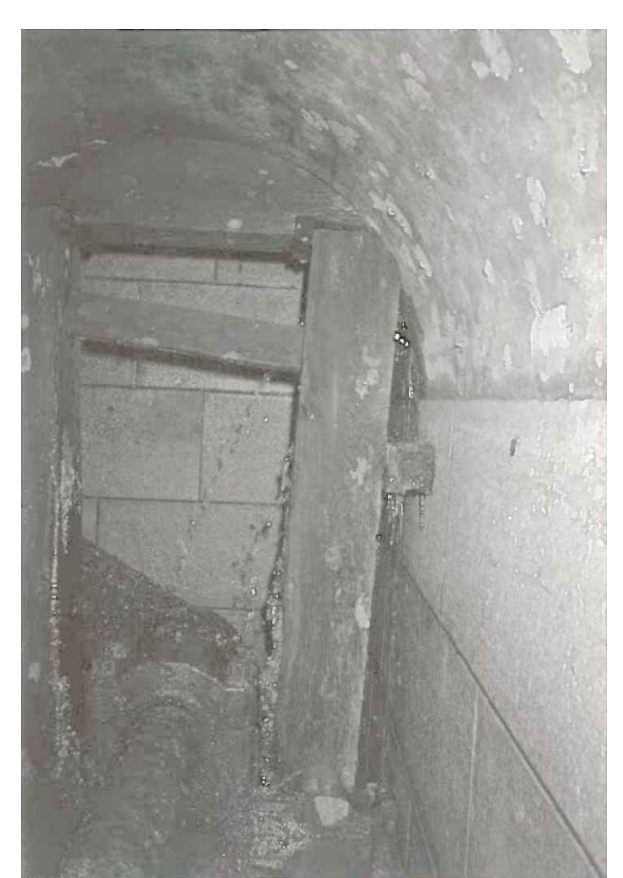
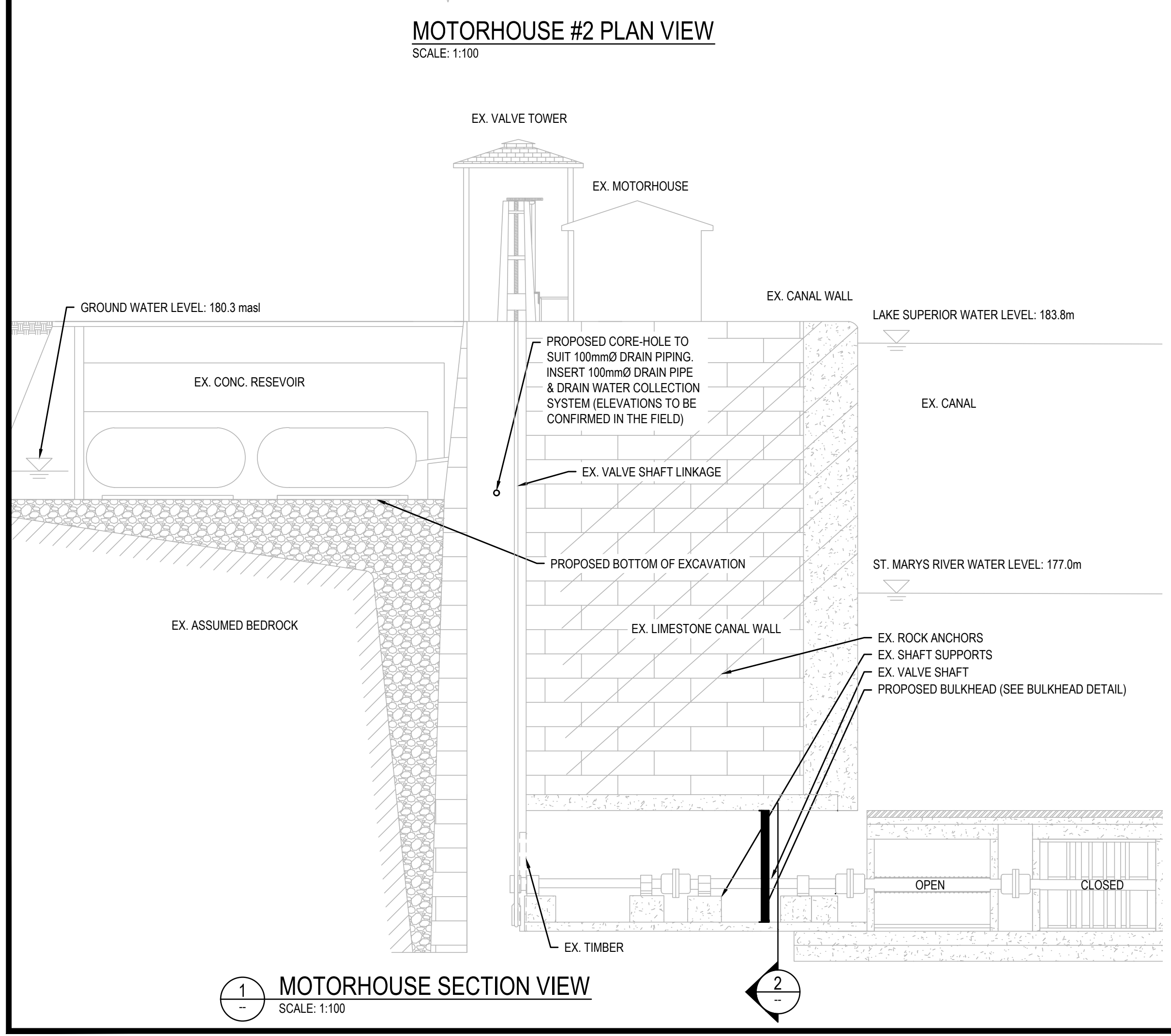
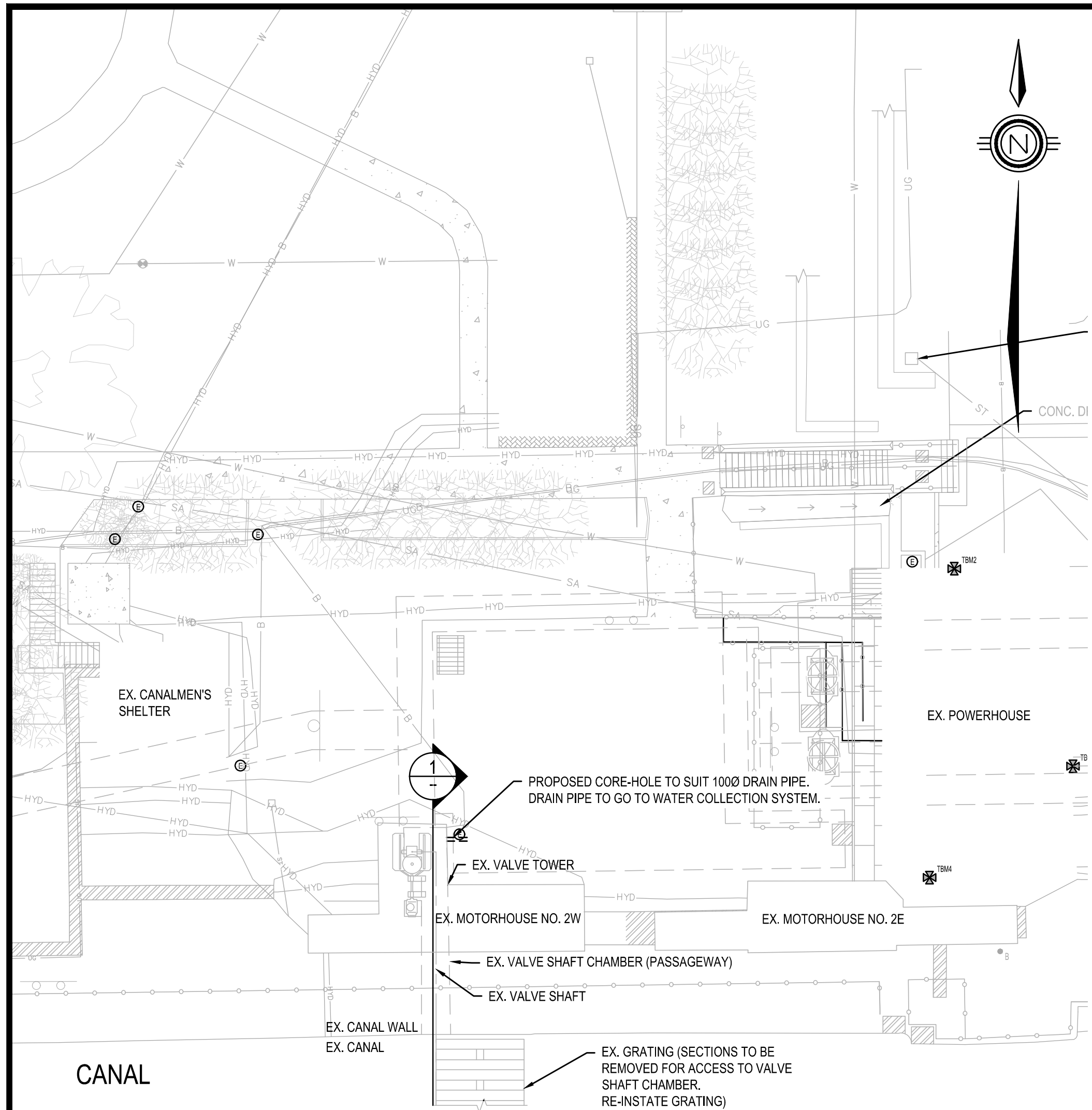
1348 ROSEMOUNT AVENUE, CORNWALL, ONTARIO CANADA, K6G 3E5
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WSP-SP501-15-001-001 (WSP# 151 00185-14)

D. M. SPACEK
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO
June 22, 2018

Project title / Titre du projet: **POWERHOUSE STRUCTURAL STABILIZATION PROJECT**

Drawing title / Titre du dessin: **VALVE TOWER BULKHEAD PLAN**

Designed by / Conçue par: D. SPACEK	Date:
Drawn by / Dessiné par: A. MCCORMICK	Date:
Checked by / Vérifié par: D. SPACEK	Date: JUNE 22, 2018
Approved by / Approuvé par: D. SPACEK	Date: JUNE 22, 2018
Project No. / N° du projet: 511SSM	Scale / Echelle: AS NOTED
Drawing Set No. / N° de série du dessin: C5.1	



NORTH VALVE SHAFT CHAMBER
SCALE: NTS (LOOKING NORTH)



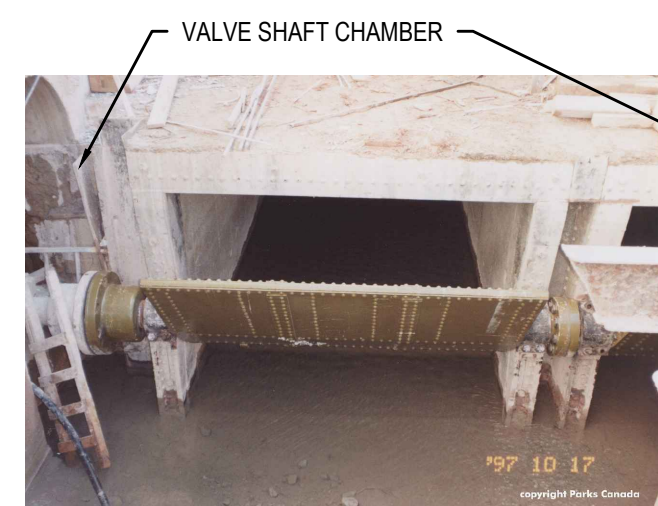
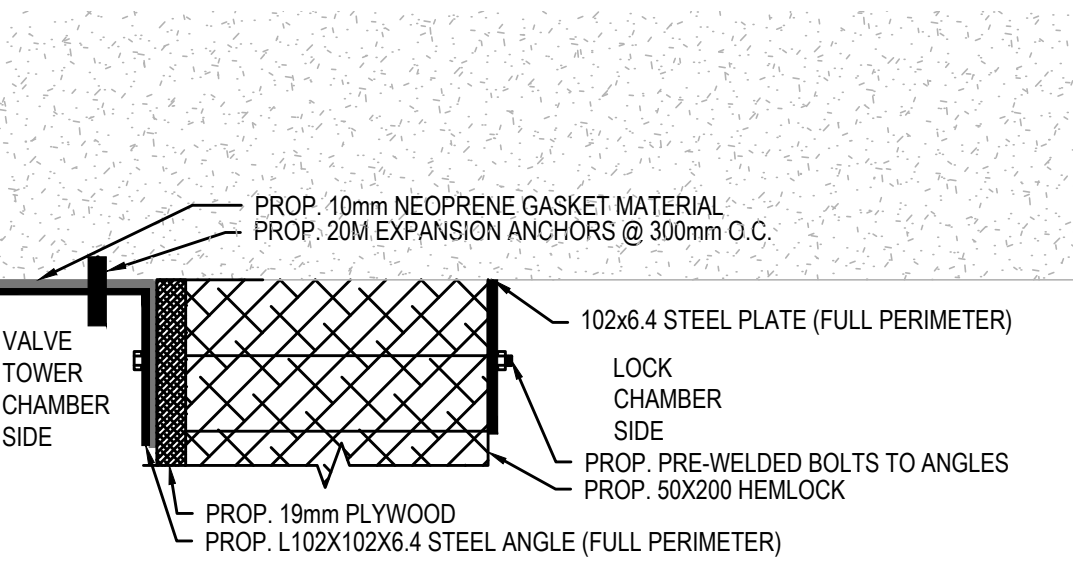
NORTH VALVE SHAFT CHAMBER
SCALE: NTS (LOOKING NORTH)



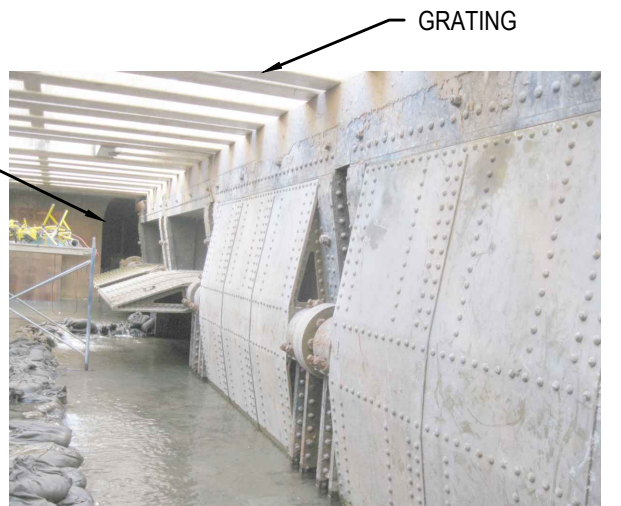
VALVE SHAFT GRATING
SCALE: NTS



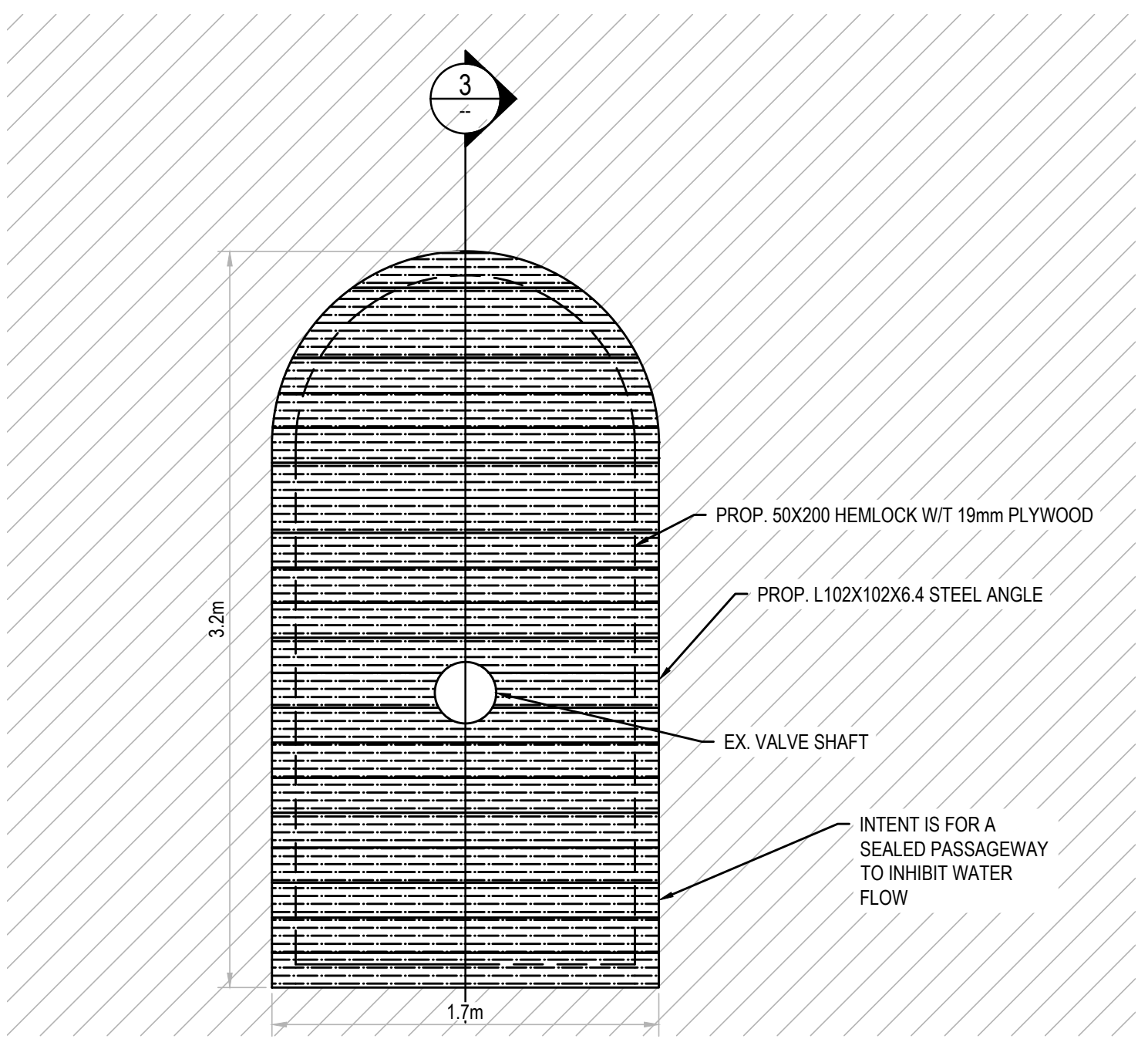
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SCALE: NTS



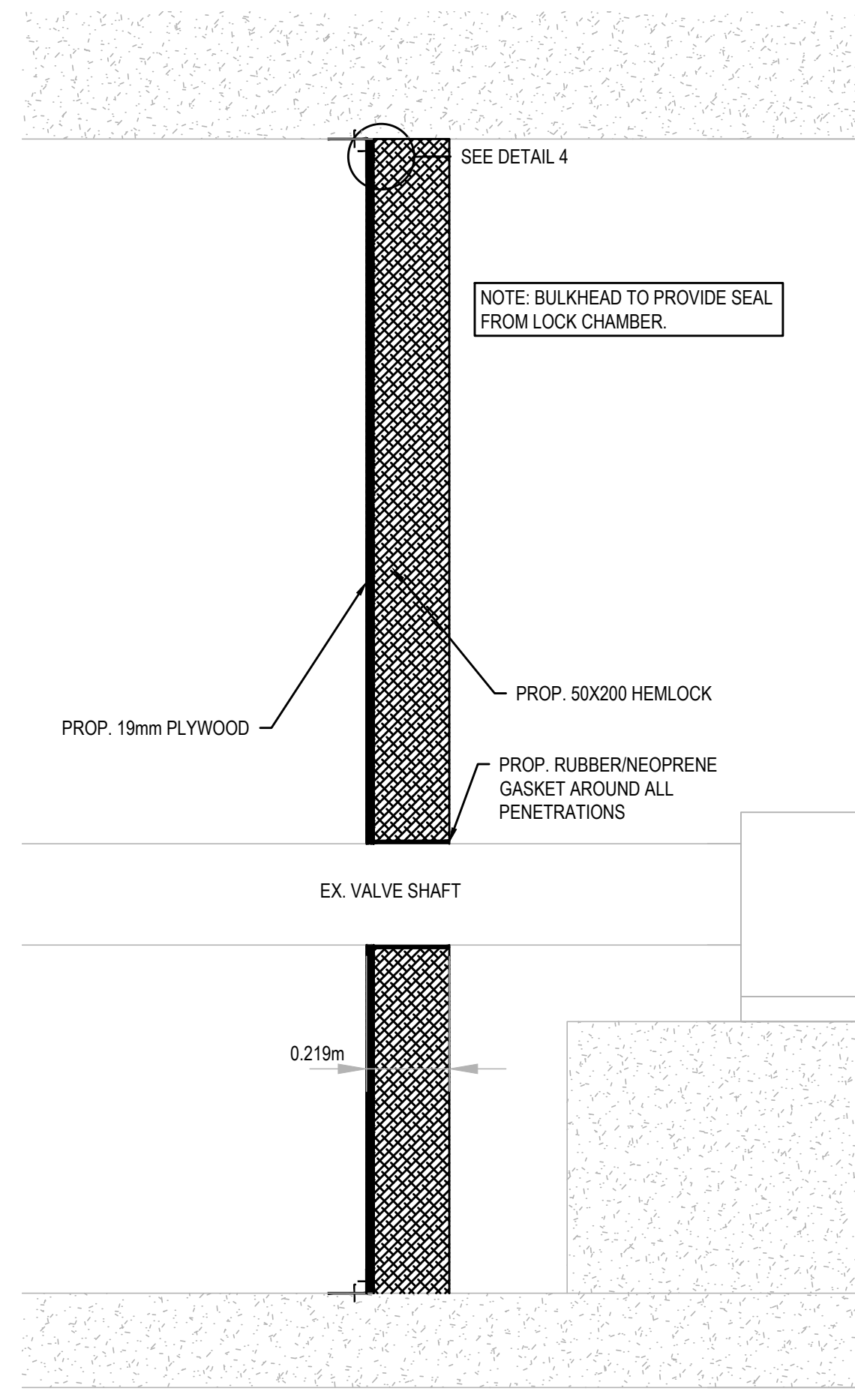
FLOW CONTROL VALVE
SCALE: NTS



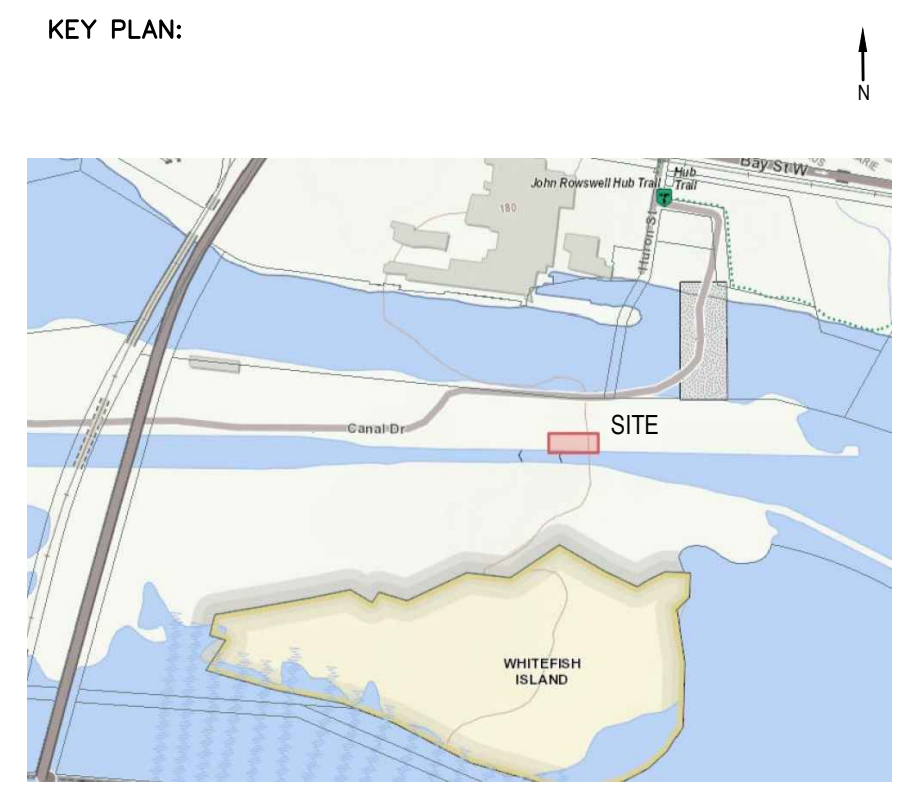
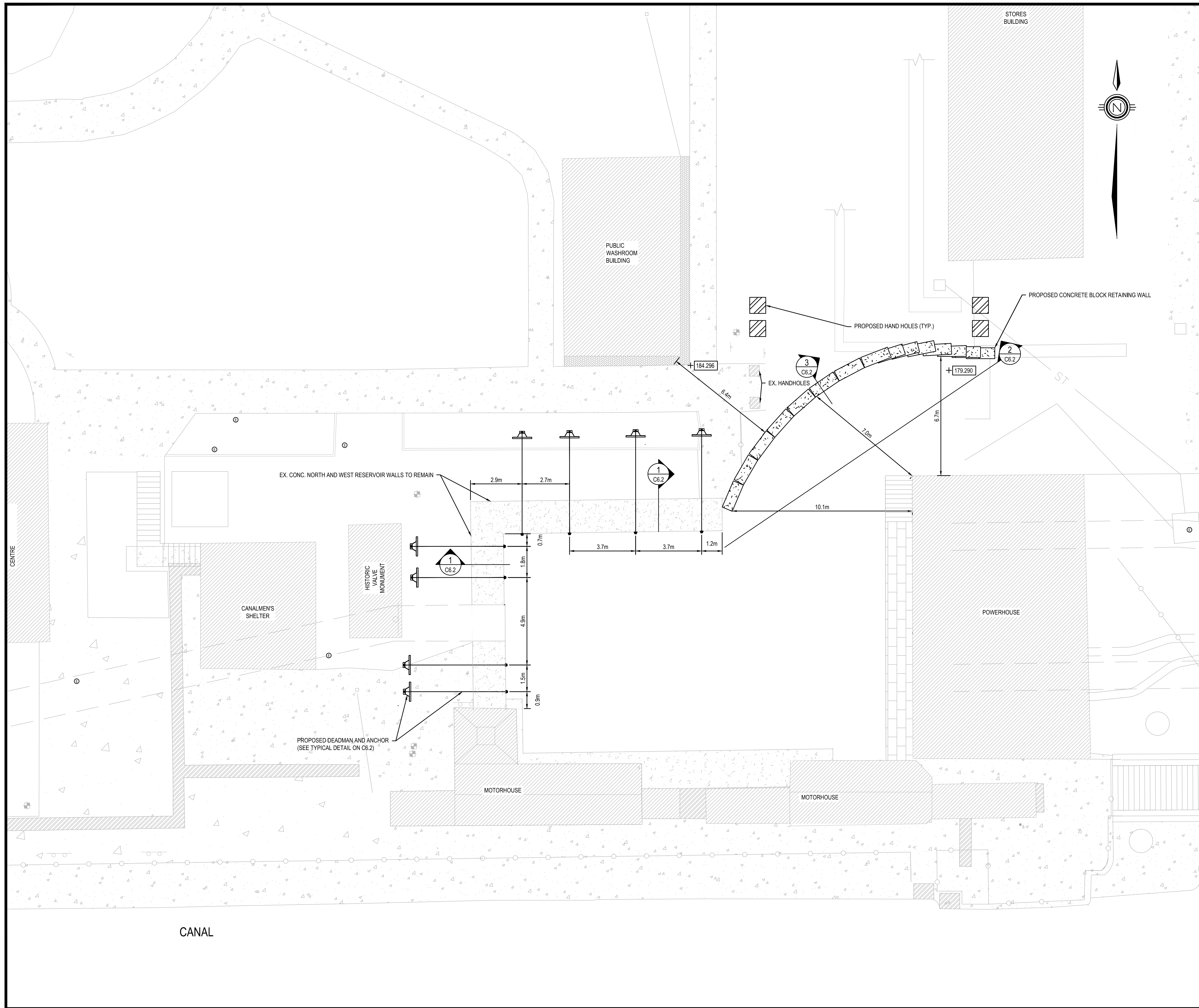
NORTH VALVE SHAFT CHAMBER OPENING
SCALE: NTS



NOTE: SHAFT WILL NOT BE OPERATED WHILE BULKHEAD IS IN PLACE.



BULKHEAD SECTION VIEW
SCALE: 1:15



- Legends:
- NEW CONSTRUCTION**
- PROPOSED / TO BE PROVIDED
 - EXISTING / TO REMAIN
- REMOVALS**
- EXISTING / TO BE REMOVED
 - EXISTING / TO REMAIN

No.	Date	Description	Drawn by / Dessiné par	Approved / Approuvé
D	22JUN18	ISSUED FOR TENDER	VARIES	D.SPACEK
C	29MAY18	DRAFT ISSUED FOR TENDER	VARIES	D.SPACEK
B	26MAR18	99% REVIEW	VARIES	D.SPACEK
A	12FEB18	66% REVIEW	VARIES	D.SPACEK

Revision / Revision	
A	Detail number / Numéro de détail
B	Sheet number / Numéro de la feuille

Linear dimensions in millimetres / Dimensions linéaires en millimètres

Consultant's Name / Nom de l'expert-conseil

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D. M. SPACEK
 LICENSED PROFESSIONAL ENGINEER
 PROVINCE OF ONTARIO

Project title / Titre du projet

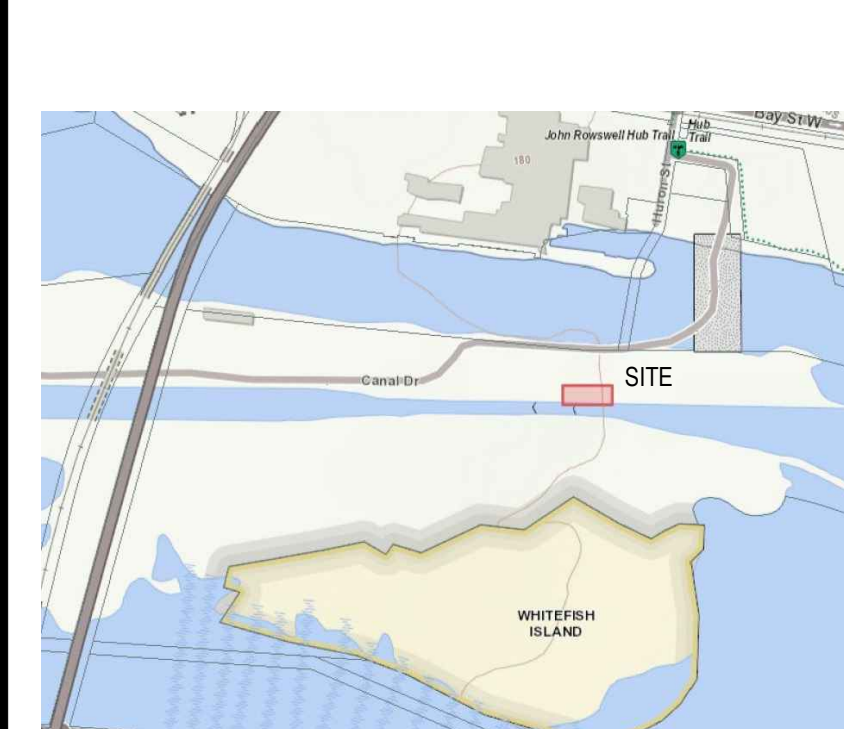
POWERHOUSE STRUCTURAL STABILIZATION PROJECT

Drawing title / Titre du dessin

SITE STABILIZATION PLAN

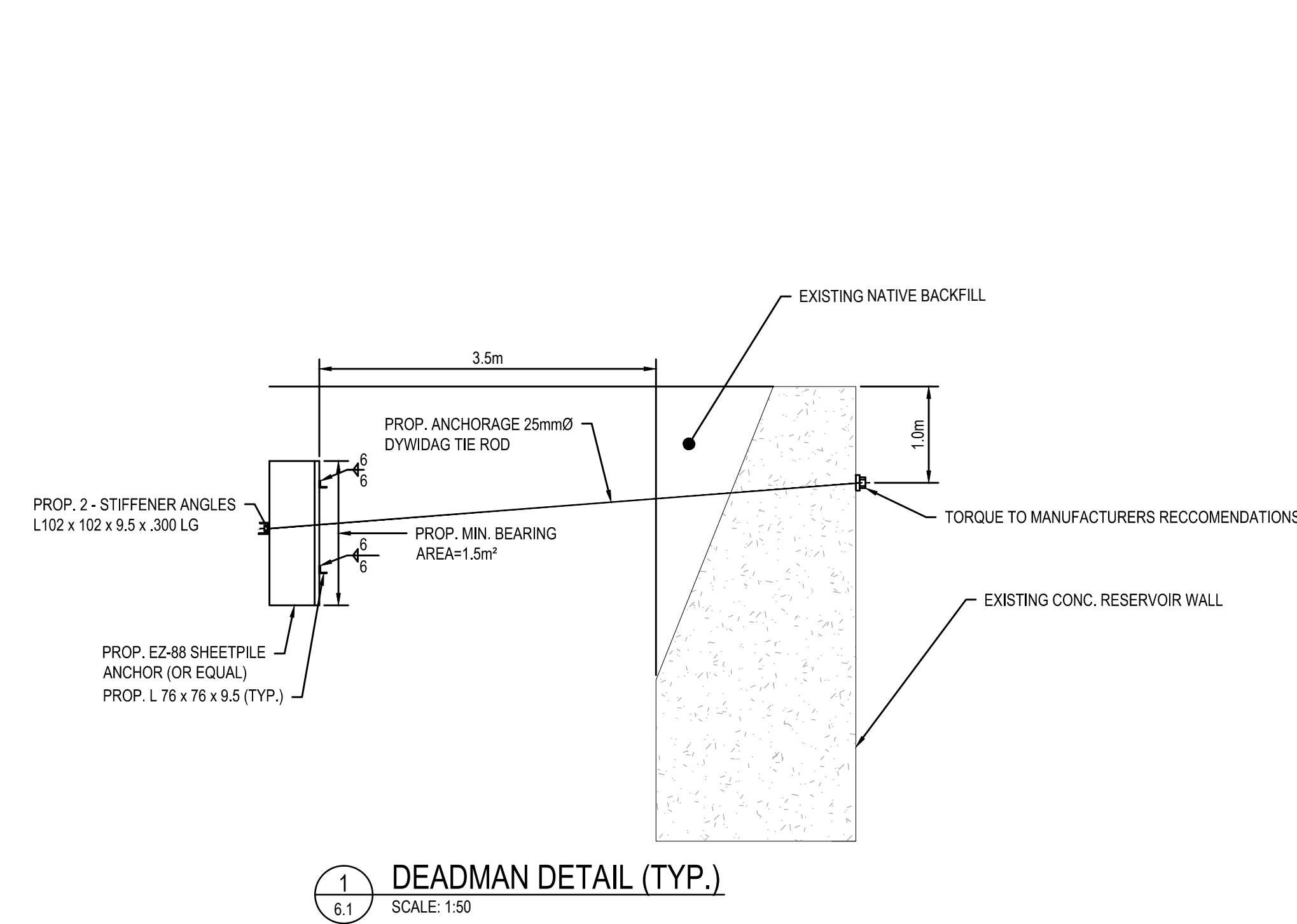
Designed by / Conçeut par D. SPACEK	Date
Drawn by / Dessiné par A. MCCORMICK	Date
Checked by / Vérifié par D. SPACEK	Date JUNE 22, 2018
Approved by / Approuvé par D. SPACEK	Date JUNE 22, 2018
Project No. / N° du projet 511SSM	Scale / Echelle 1:100
Drawing Set No. / N° de série du dessin	Sheet No. / N° de la feuille C6.1

KEY PLAN:

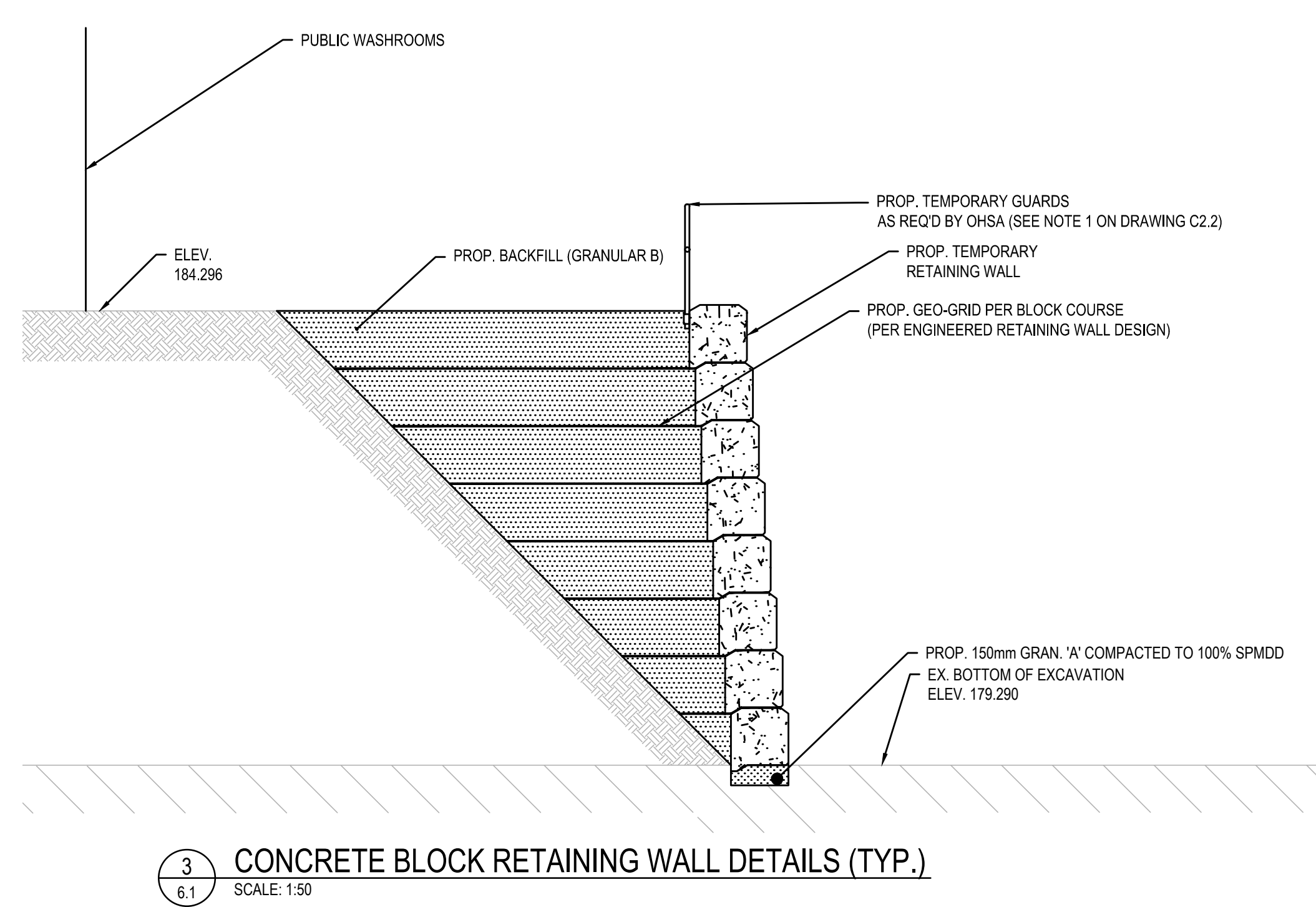


SAULT STE. MARIE, ONTARIO

- Legends:
- NEW CONSTRUCTION**
- PROPOSED / TO BE PROVIDED
 - EXISTING / TO REMAIN
- REMOVALS**
- EXISTING / TO BE REMOVED
 - EXISTING / TO REMAIN

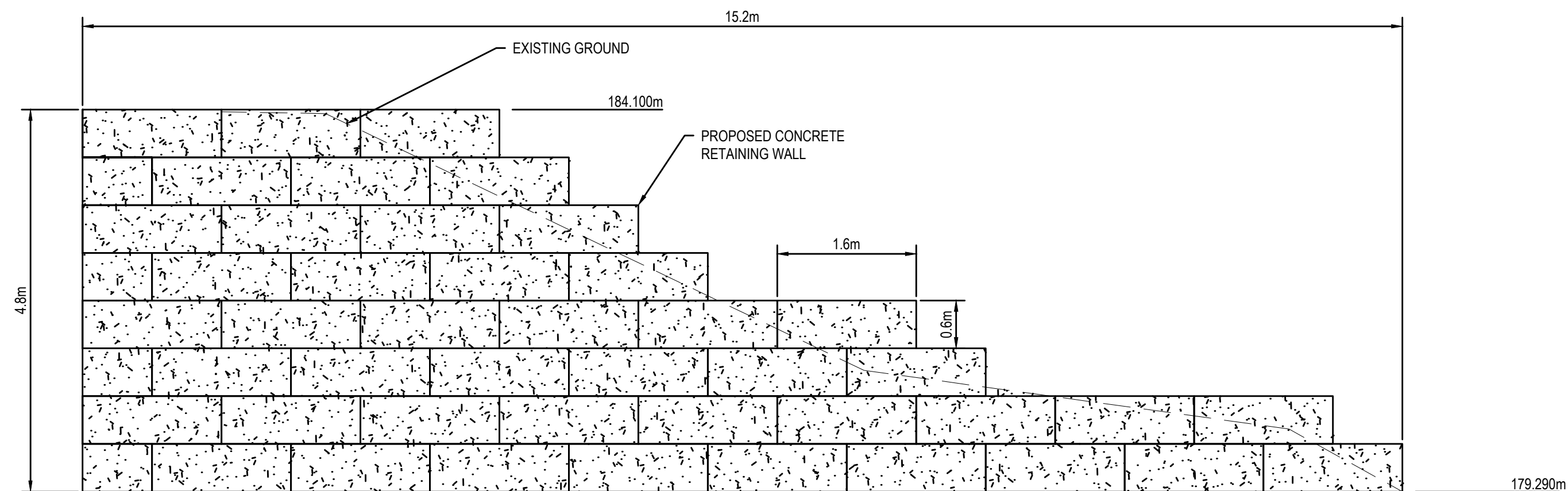


1 DEADMAN DETAIL (TYP.)
SCALE: 1:50



3 CONCRETE BLOCK RETAINING WALL DETAILS (TYP.)
SCALE: 1:50

CONTRACTOR SHALL PROVIDE RETAINING WALL SHOP DRAWINGS DRAWINGS SHALL BE CERTIFIED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO.



2 CONCRETE BLOCK RETAINING WALL ELEVATION VIEW
SCALE: 1:50

No.	Date	Description	Drawn by Dessiné par	Approved Approuvé
D	22JUN18	ISSUED FOR TENDER	VARIES	D.SPACEK
C	29MAY18	DRAFT ISSUED FOR TENDER	VARIES	D.SPACEK
B	26MAR18	99% REVIEW	VARIES	D.SPACEK
A	12FEB18	66% REVIEW	VARIES	D.SPACEK

Revision / Révision	
A	Detail number / A Numéro de détail
B	Sheet number / B Numéro de la feuille

Consultant's Name / Nom de l'expert-conseil

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D. M. SPACEK
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

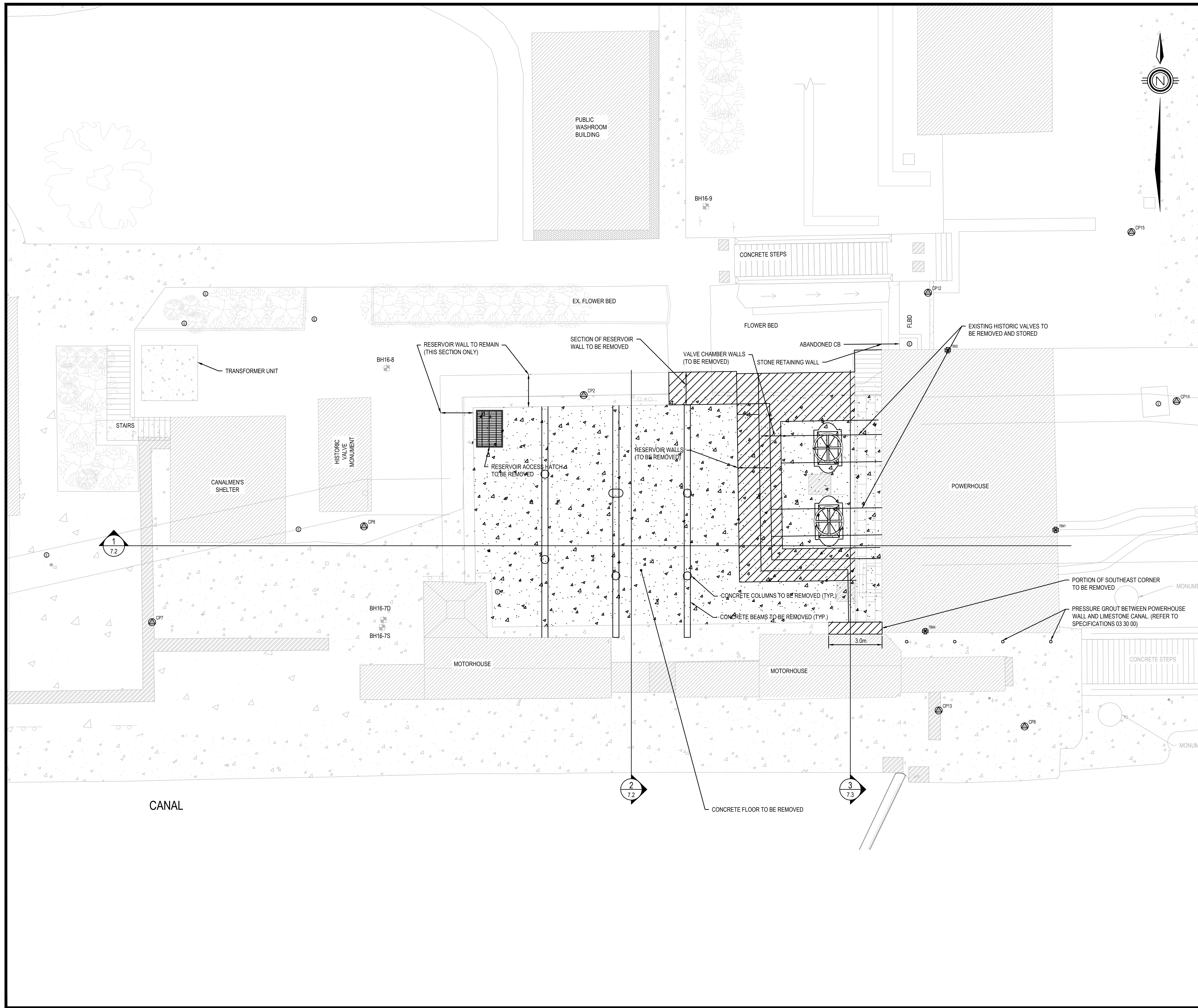
Project title / Titre du projet

POWERHOUSE STRUCTURAL STABILIZATION PROJECT

Drawing title / Titre du dessin

SITE STABILIZATION DETAILS

Designed by / Concept par D. SPACEK	Date
Drawn by / Dessiné par A. MCCORMICK	Date
Checked by / Vérifié par D. SPACEK	Date JUNE 22, 2018
Approved by / Approuvé par D. SPACEK	Date JUNE 22, 2018
Project No. / N° du projet 511SSM	Scale / Échelle AS NOTED
Drawing Set No. / N° de série du dessin	
Sheet No. / N° de la feuille C6.2	



Government of Canada
Gouvernement du Canada

Parks Canada
Parcs Canada

Northern Ontario
Field Unit

Unité de gestion du
Nord de l'Ontario

KEY PLAN:

SAULT STE. MARIE, ONTARIO

Legends:

NEW CONSTRUCTION

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REMOVALS

- EXISTING / TO BE REMOVED
- EXISTING / TO REMAIN

No.	Date	Description	Drawn by Dessiné par	Approved Approuvé
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B	26MAR18	99% REVIEW	VARIES	D.SPACEK
A	12FEB18	66% REVIEW	VARIES	D.SPACEK

Revision / Revision	
A	Detail number Sheet number
B	A Numéro de détail B Numéro de la feuille

Linear dimensions in millimetres / Dimensions linéaires en millimètres

Consultant's Name
Nom de l'expert-conseil

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TEL: 613-933-9921 | FAX: 705-608-4335 | WWW.WSP.COM
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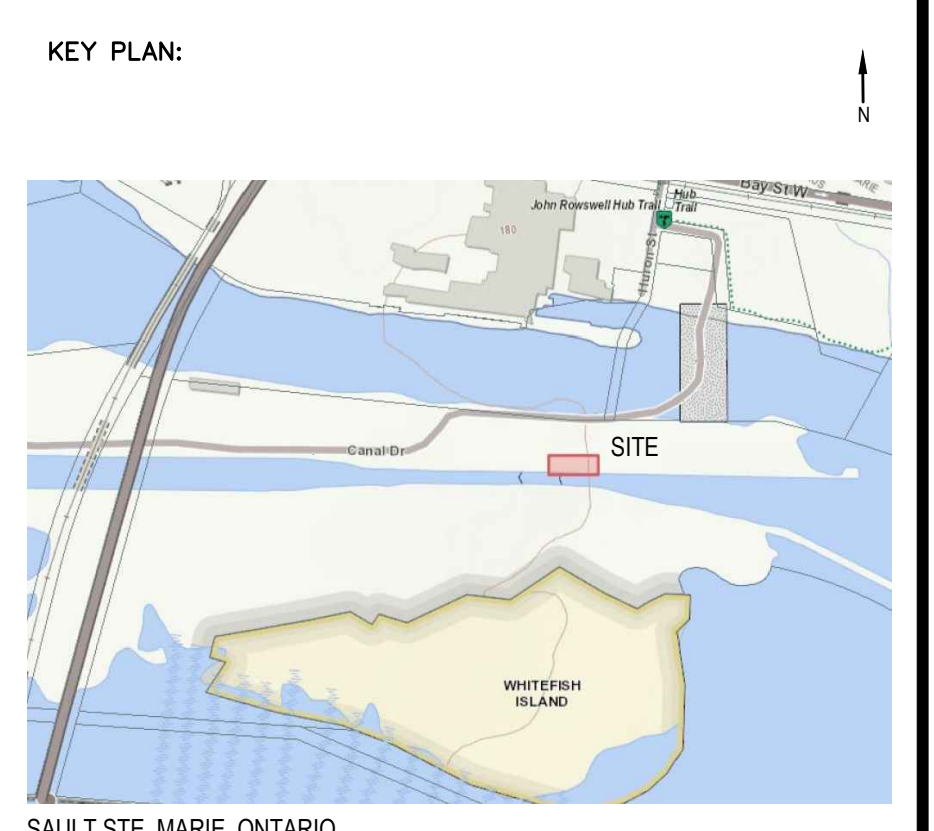
Project title/Titre du projet

POWERHOUSE STRUCTURAL STABILIZATION PROJECT

Drawing title/Titre du dessin

RESERVOIR AND VALVE CHAMBER REMOVAL PLAN

Designed by/Conçeut par D.SPACEK	Date
Drawn by/Dessiné par N.RUSSELL	Date
Checked by/Vérifié par D.SPACEK	Date JUNE 22, 2018
Approved by/Approuvé par D.SPACEK	Date JUNE 22, 2018
Project No./N° du projet 511SSM	Scale/Échelle 1:100
Drawing Set No./N° de série du dessin	Sheet No./N° de la feuille C7.1



SAULL STE. MARIE, ONTARIO

Legends:

NEW CONSTRUCTION	
	PROPOSED / TO BE PROVIDED
	EXISTING / TO REMAIN
REMOVALS	
	EXISTING / TO BE REMOVED
	EXISTING / TO REMAIN

No.	Date	Description	Drawn by / Dessiné par	Approved / Approuvé
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C	29MAY18	DRAFT ISSUED FOR TENDER	VARIES	D.SPACEK
B	26MAR18	99% REVIEW	VARIES	D.SPACEK
A	12FEB18	66% REVIEW	VARIES	D.SPACEK

Revision / Révision			
A	Detail number	A Numéro de détail	
B	Sheet number	B Numéro de la feuille	

Linear dimensions in millimetres	Dimensions linéaires en millimètres

Consultant's Name / Nom de l'expert-conseil

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D. M. SPACEK
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

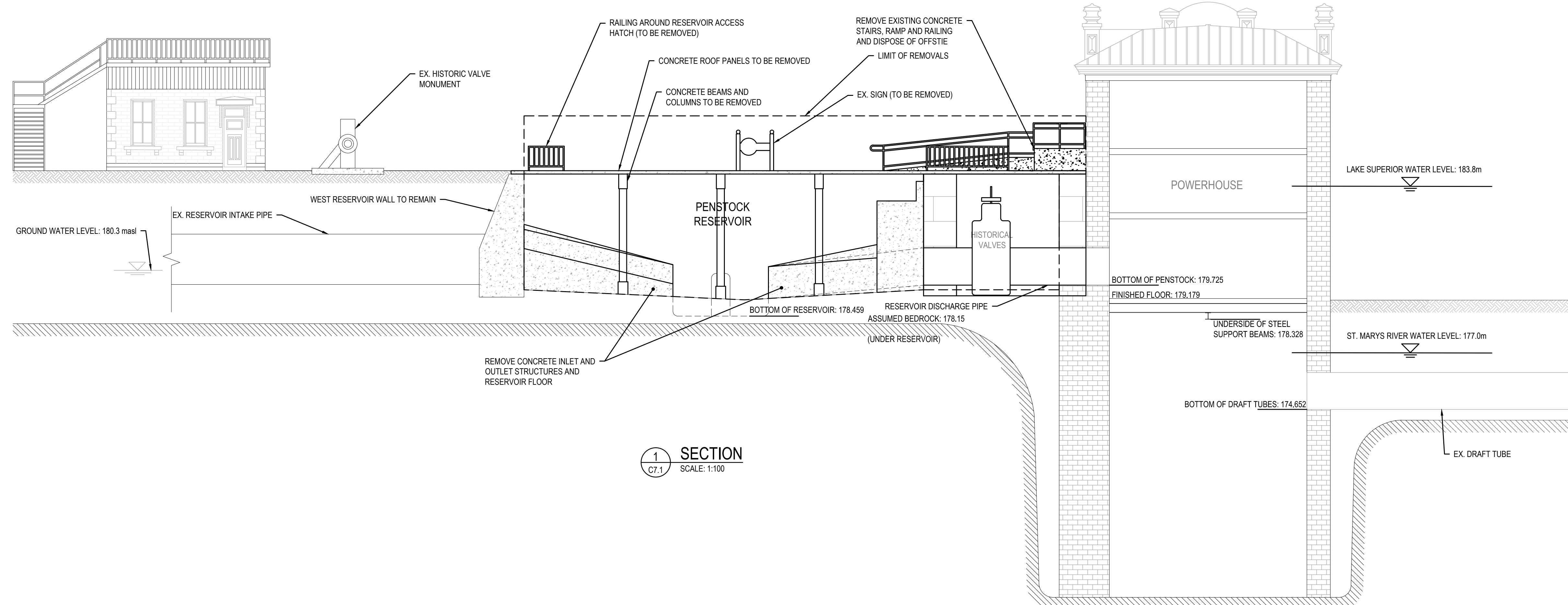
Project title / Titre du projet

POWERHOUSE STRUCTURAL STABILIZATION PROJECT

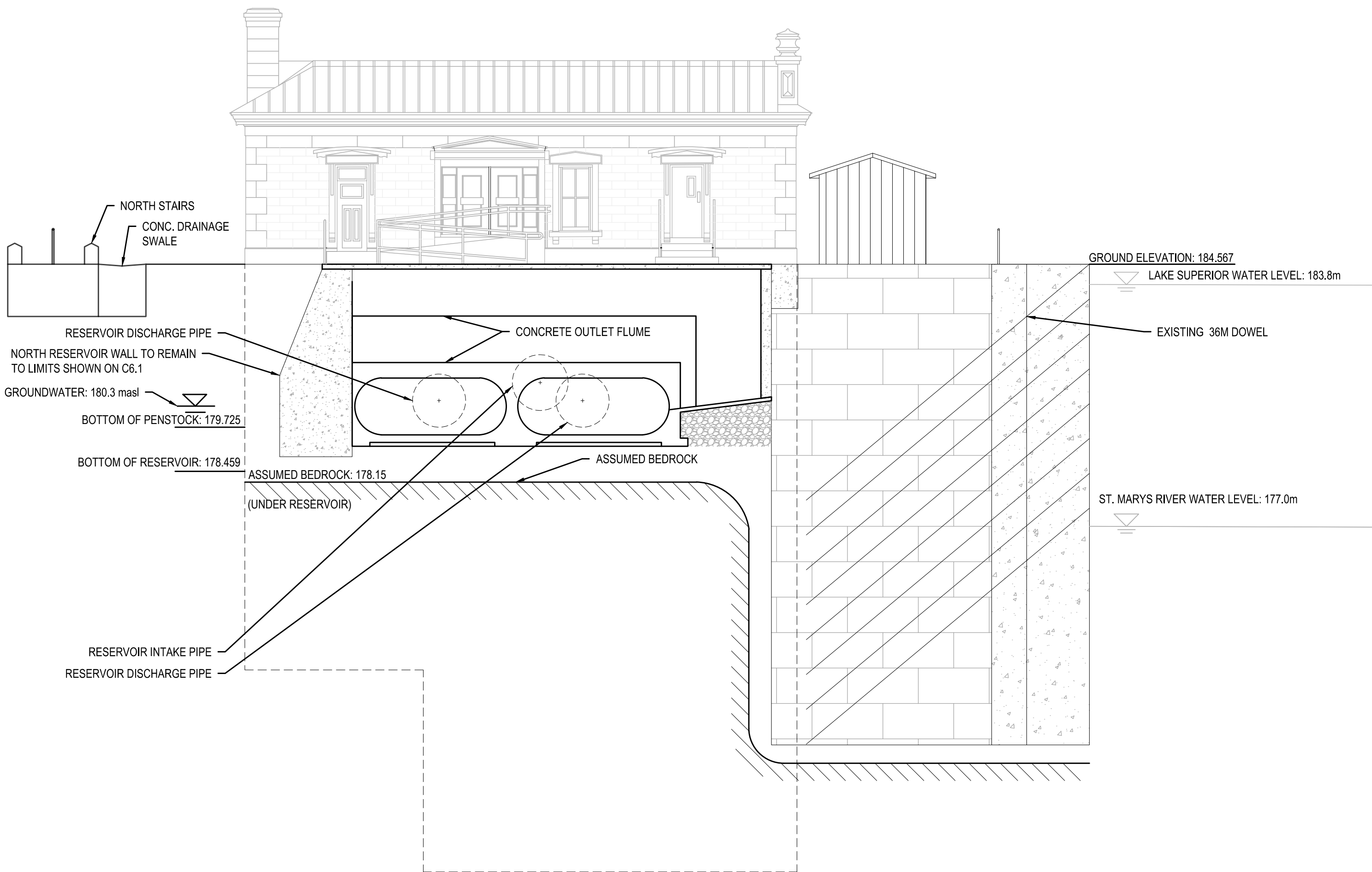
Drawing title / Titre du dessin

RESERVOIR AND VALVE CHAMBER CROSS-SECTION (1 OF 2)

Designed by / Conçeut par D.SPACEK	Date
Drawn by / Dessiné par N.RUSSELL	Date
Checked by / Vérifié par D.SPACEK	Date JUNE 22, 2018
Approved by / Approuvé par D.SPACEK	Date JUNE 22, 2018
Project No. / N° du projet 511SSM	Scale / Echelle AS NOTED
Drawing Set No. / N° de série du dessin	Sheet No. / N° de la feuille C7.2

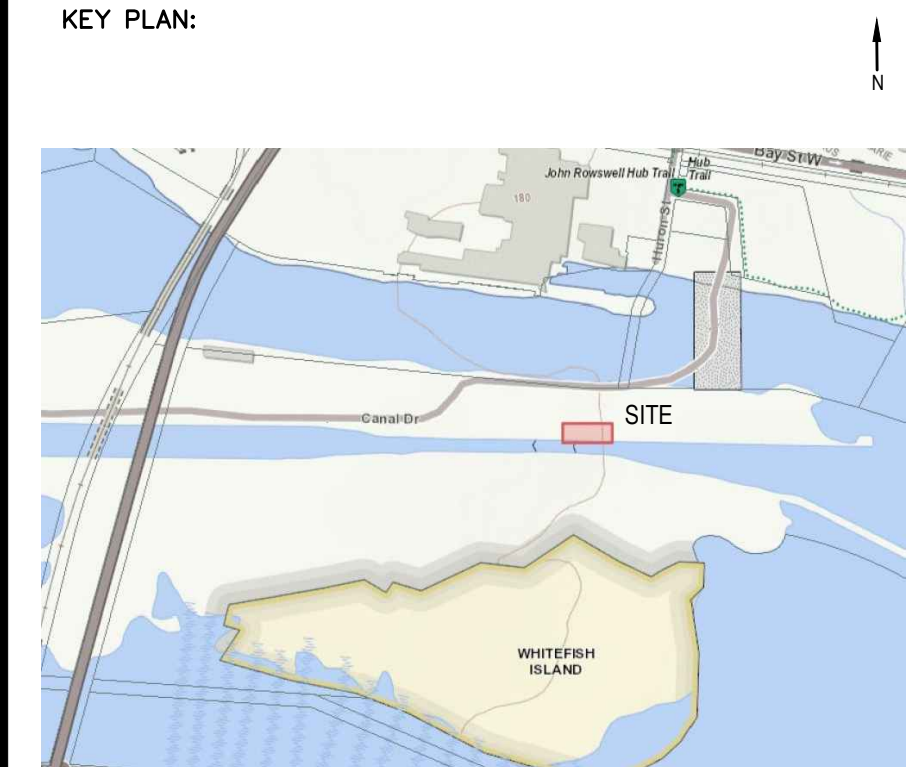


SECTION 1
SCALE: 1:100



SECTION 2
SCALE: 1:100

KEY PLAN:



SAULT STE. MARIE, ONTARIO

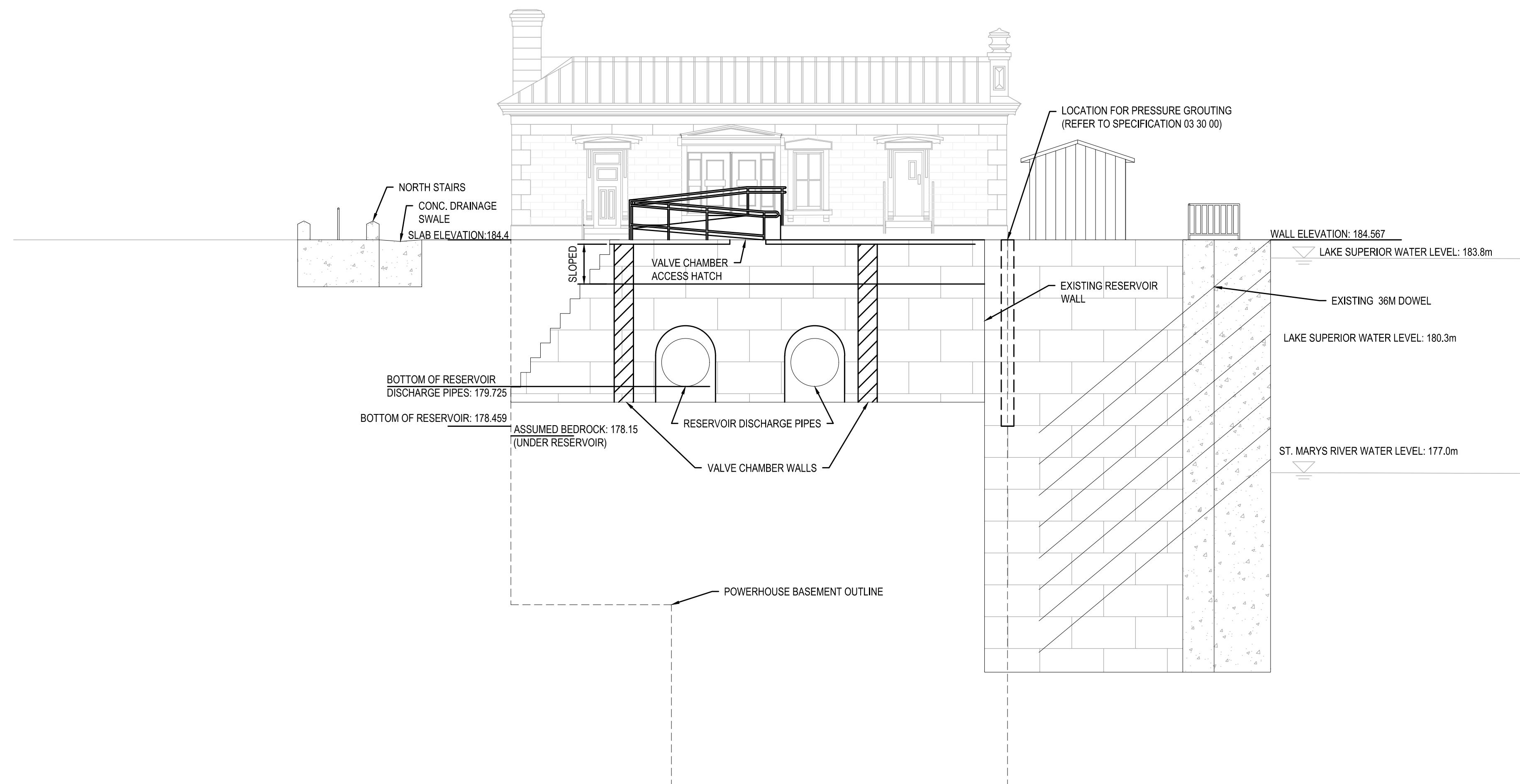
Legends:

NEW CONSTRUCTION

- PROPOSED / TO BE PROVIDED
- EXISTING / TO REMAIN

REMOVALS

- EXISTING / TO BE REMOVED
- EXISTING / TO REMAIN



3 WEST POWERHOUSE SECTION
SCALE: 1:100

No.	Date	Description	Drawn by Dessiné par	Approved Approuvé
D	22JUN18	ISSUED FOR TENDER	VARIES	D.SPACEK
C	29MAY18	DRAFT ISSUED FOR TENDER	VARIES	D.SPACEK
B	26MAR18	99% REVIEW	VARIES	D.SPACEK
A	12FEB18	66% REVIEW	VARIES	D.SPACEK

Revision / Révision	
A	Detail number / A Numéro de détail
B	Sheet number / B Numéro de la feuille

Linear dimensions in millimetres	Dimensions linéaires en millimètres
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Consultant's Name / Nom de l'expert-conseil

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D. M. SPACEK

LICENSED PROFESSIONAL ENGINEER
June 22, 2018
PROVINCE OF ONTARIO

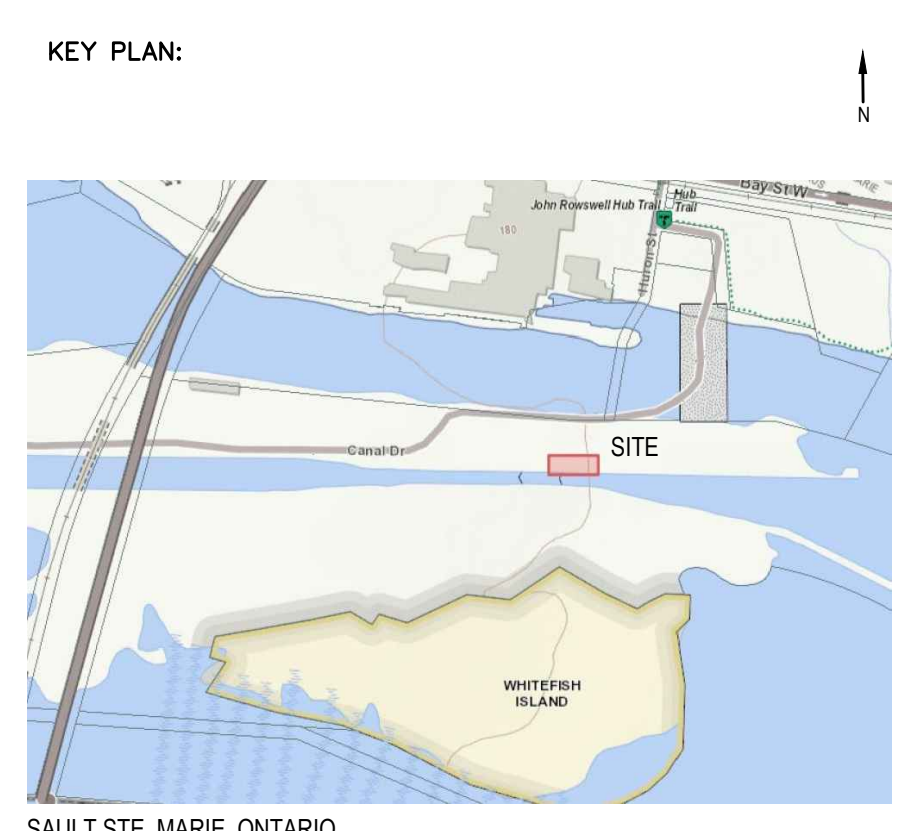
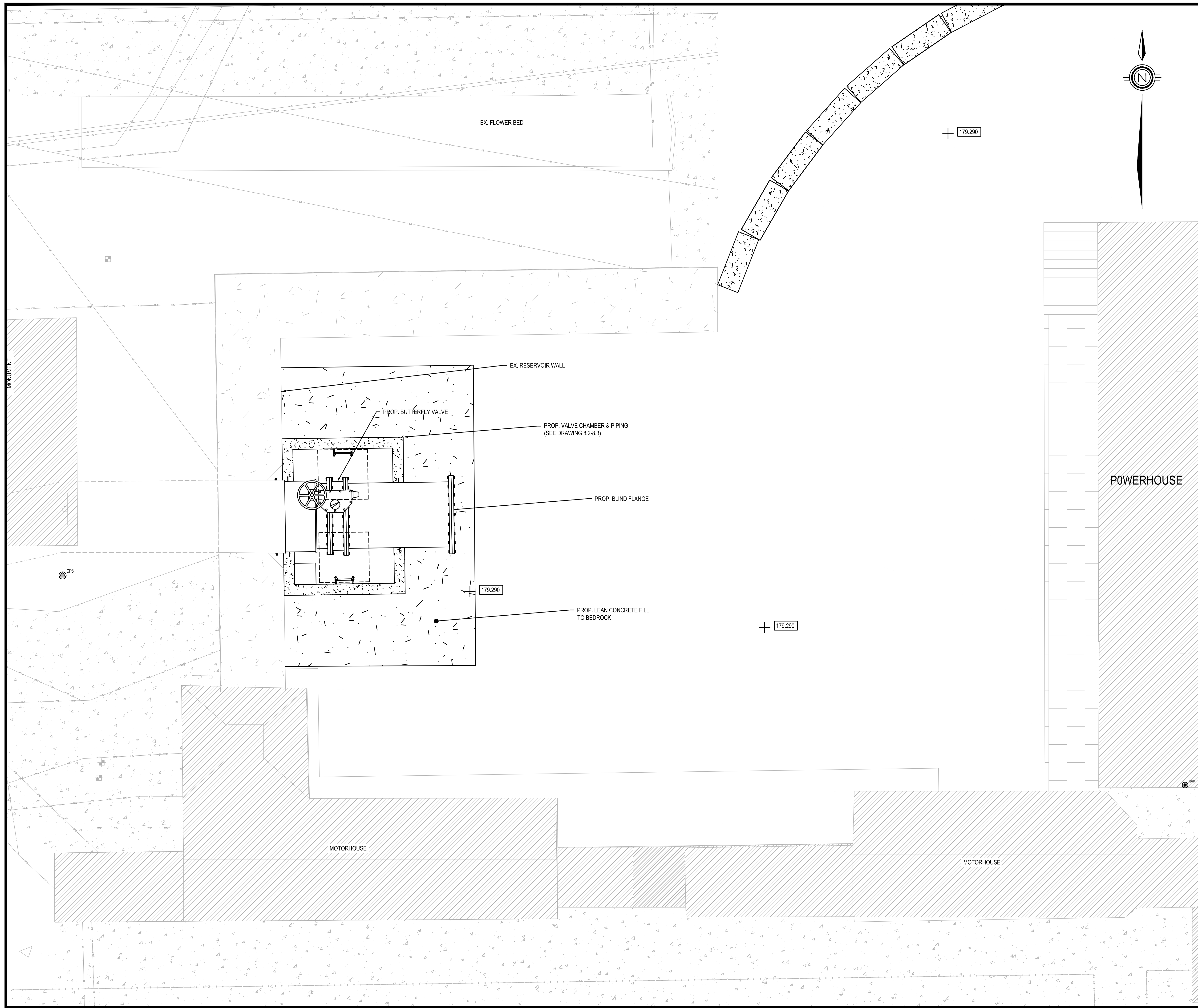
Project title / Titre du projet

POWERHOUSE STRUCTURAL STABILIZATION PROJECT

Drawing title / Titre du dessin

RESERVOIR AND VALVE CHAMBER CROSS-SECTION (2 OF 2)

Designed by / Concept par D.SPACEK	Date
Drawn by / Dessiné par N.RUSSELL	Date
Checked by / Vérifié par D.SPACEK	Date JUNE 22, 2018
Approved by / Approuvé par D.SPACEK	Date JUNE 22, 2018
Project No. / N° du projet 511SSM	Scale / Echelle --
Sheet No. / N° de la feuille C7.3	
Drawing Set No. / N° de série du dessin -	



- Legends:
- NEW CONSTRUCTION**
- PROPOSED / TO BE PROVIDED
 - EXISTING / TO REMAIN
- REMOVALS**
- EXISTING / TO BE REMOVED
 - EXISTING / TO REMAIN

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B	26MAR18	99% REVIEW	VARIES	D.SPACEK
A	12FEB18	66% REVIEW	VARIES	D.SPACEK

Revision / Révision	
A	Detail number / A Numéro de détail
B	Sheet number / B Numéro de la feuille

Consultant's Name / Nom de l'expert-conseil

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LICENSED PROFESSIONAL ENGINEER
D. M. SPACEK
June 22, 2018
PROVINCE OF ONTARIO

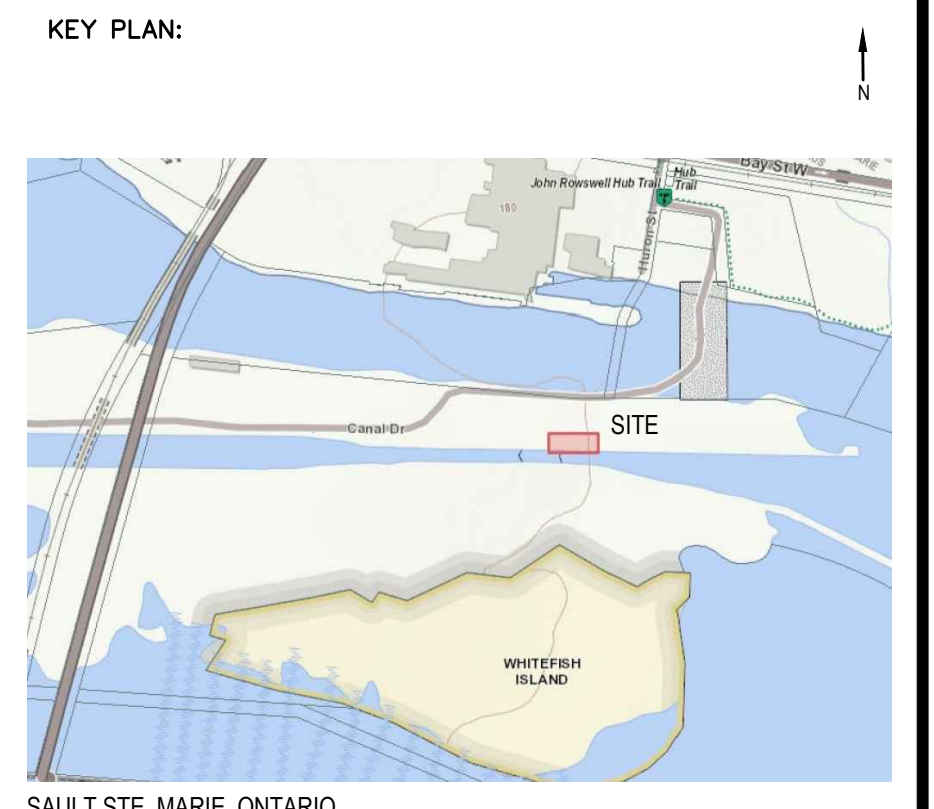
Project title / Titre du projet

POWERHOUSE STRUCTURAL STABILIZATION PROJECT

Drawing title / Titre du dessin

CONTEMPORARY VALVE CHAMBER PLAN

Designed by / Conçeut par M. PILON	Date
Drawn by / Dessiné par A. MCCORMICK	Date
Checked by / Vérifié par D.SPACEK	Date JUNE 22, 2018
Approved by / Approuvé par D.SPACEK	Date JUNE 22, 2018
Project No. / N° du projet 511SSM	Scale / Echelle 1:50
Drawing Set No. / N° de série du dessin	Sheet No. / N° de la feuille C8.1



Legends:

NEW CONSTRUCTION

- PROPOSED / TO BE PROVIDED
- EXISTING / TO REMAIN

REMOVALS

- EXISTING / TO BE REMOVED
- EXISTING / TO REMAIN

No.	Date	Description	Drawn by / Dessiné par	Approved / Approuvé
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C	29MAY18	DRAFT ISSUED FOR TENDER	VARIES	D.SPACEK
B	26MAR18	99% REVIEW	VARIES	D.SPACEK
A	12FEB18	66% REVIEW	VARIES	D.SPACEK

Revision / Révision

A	B	Detail number / Numéro de détail	A	B

Linear dimensions in millimetres / Dimensions linéaires en millimètres

Consultant's Name / Nom de l'expert-conseil: **wsp**

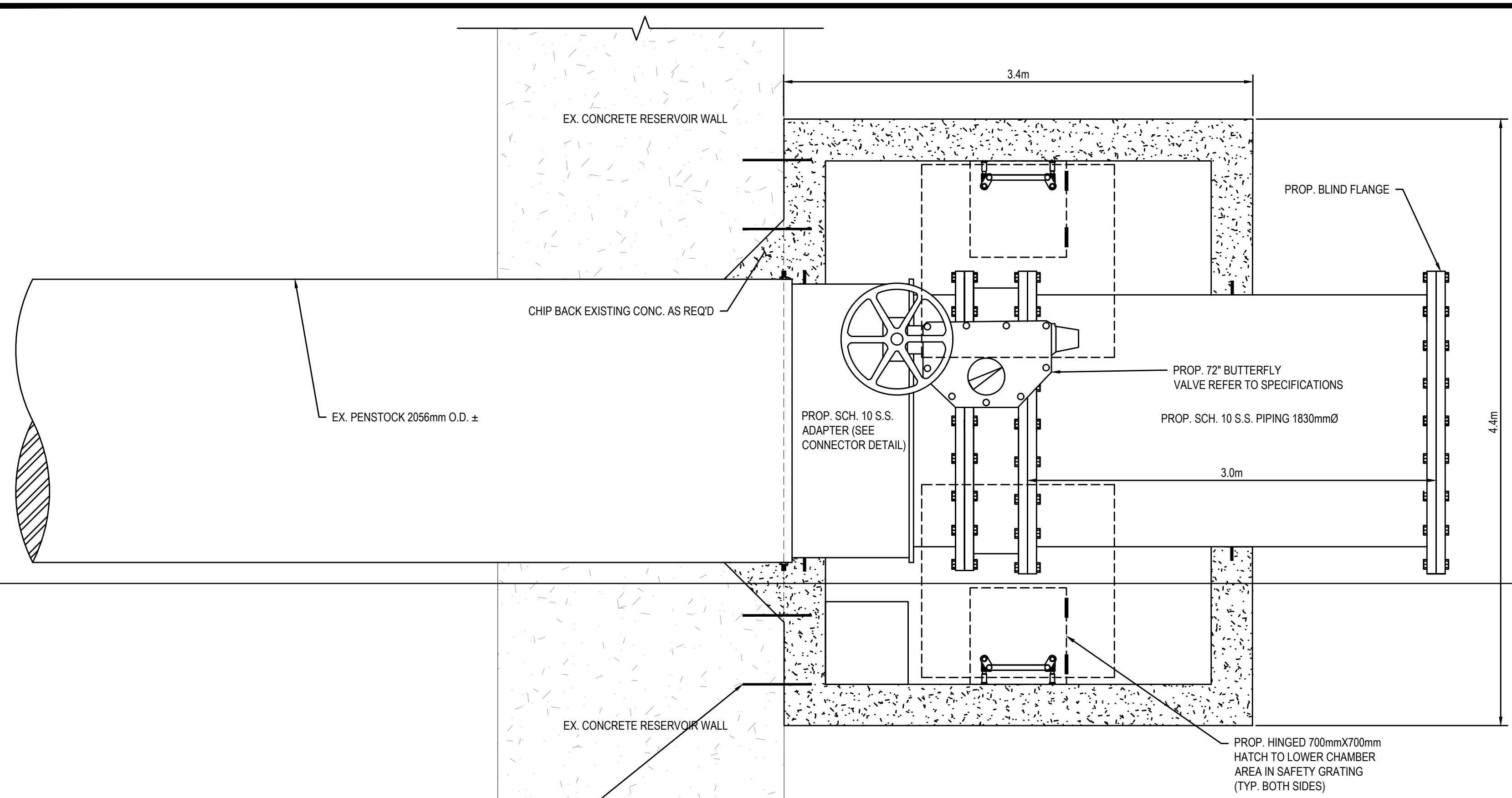
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TEL: 613-933-9602 | FAX: 705-508-0335 | WWW.WSP.COM
WSP-SP201-15-001-001 (WSP# 151 00185-14)

LICENSED PROFESSIONAL ENGINEER / D. M. SPACEK
PROVINCE OF ONTARIO

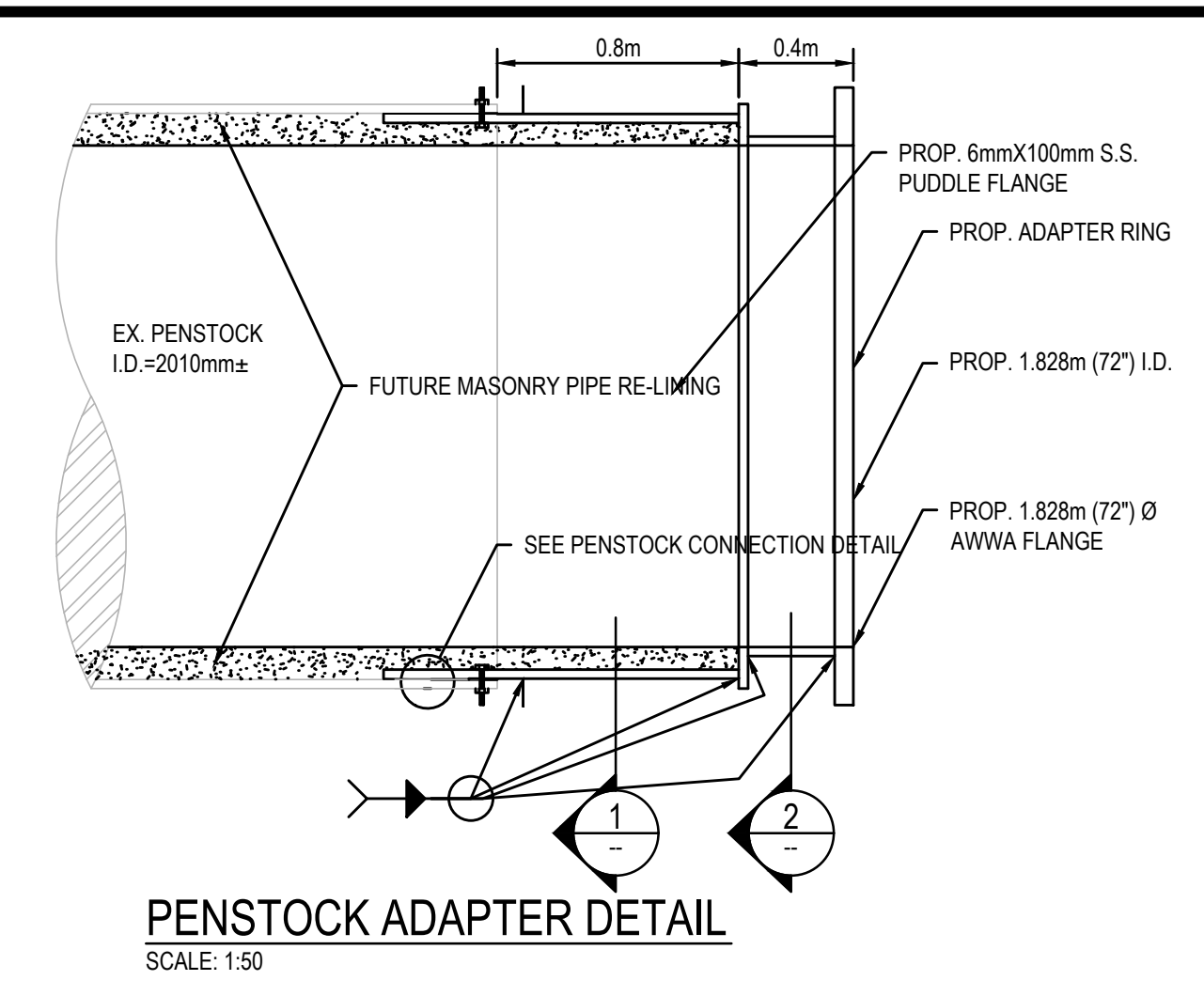
Project title / Titre du projet: POWERHOUSE STRUCTURAL STABILIZATION PROJECT

Drawing title / Titre du dessin: CONTEMPORARY VALVE CHAMBER DETAILS (1 OF 2)

Designed by / Conçeut par: M. PILON	Date
Drawn by / Dessiné par: A. MCCORMICK	Date
Checked by / Vérifié par: D.SPACEK	Date: JUNE 22, 2018
Approved by / Approuvé par: D.SPACEK	Date: JUNE 22, 2018
Project No. / N° du projet: 511SSM	Scale / Echelle: AS NOTED
Drawing Set No. / N° de série du dessin: -	Sheet No. / N° de la feuille: C8.2

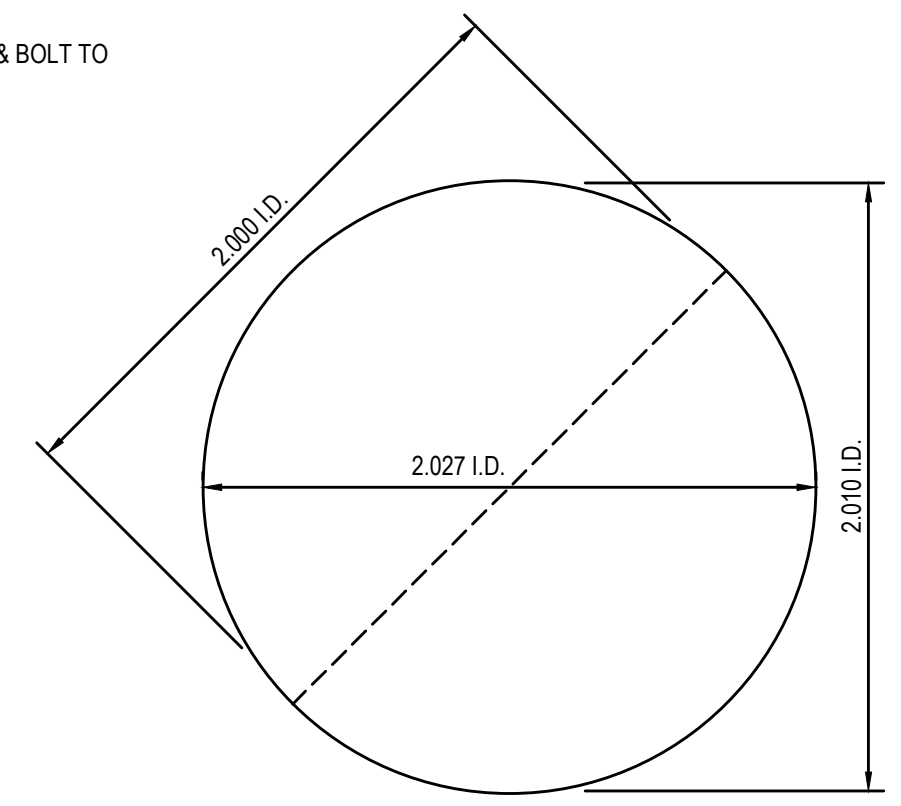


VALVE AND CHAMBER PLAN VIEW
SCALE: 1:25

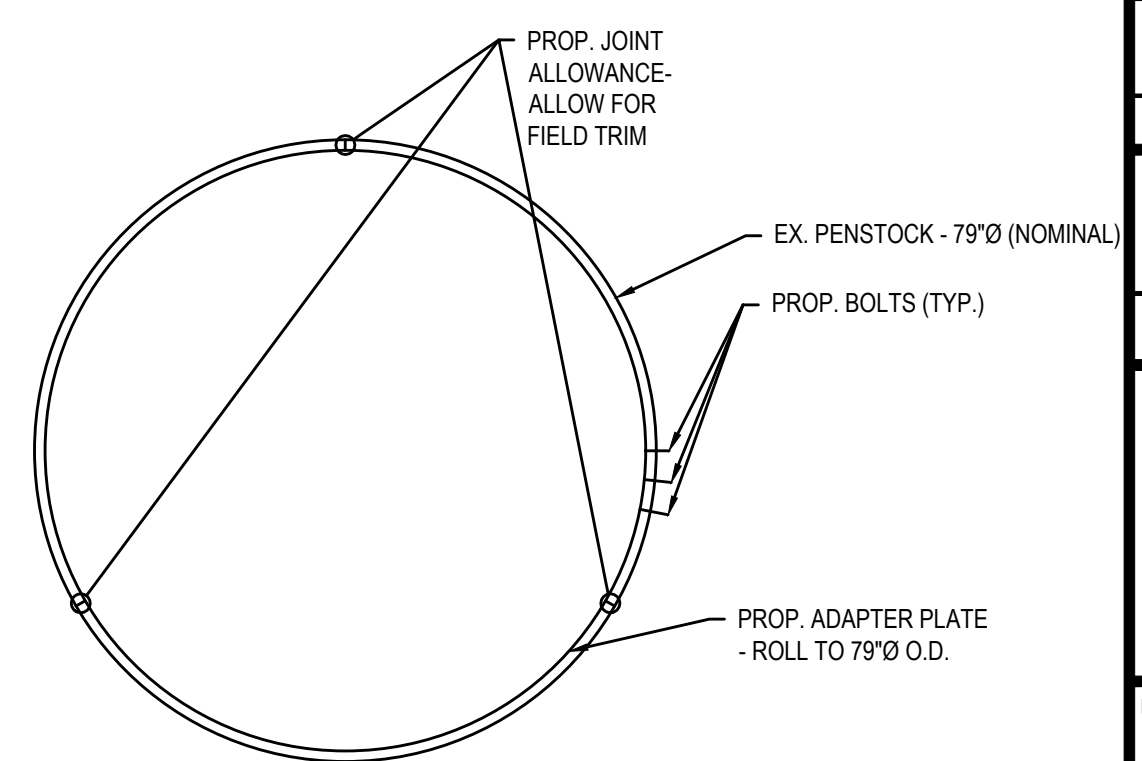


PENSTOCK ADAPTER DETAIL
SCALE: 1:50

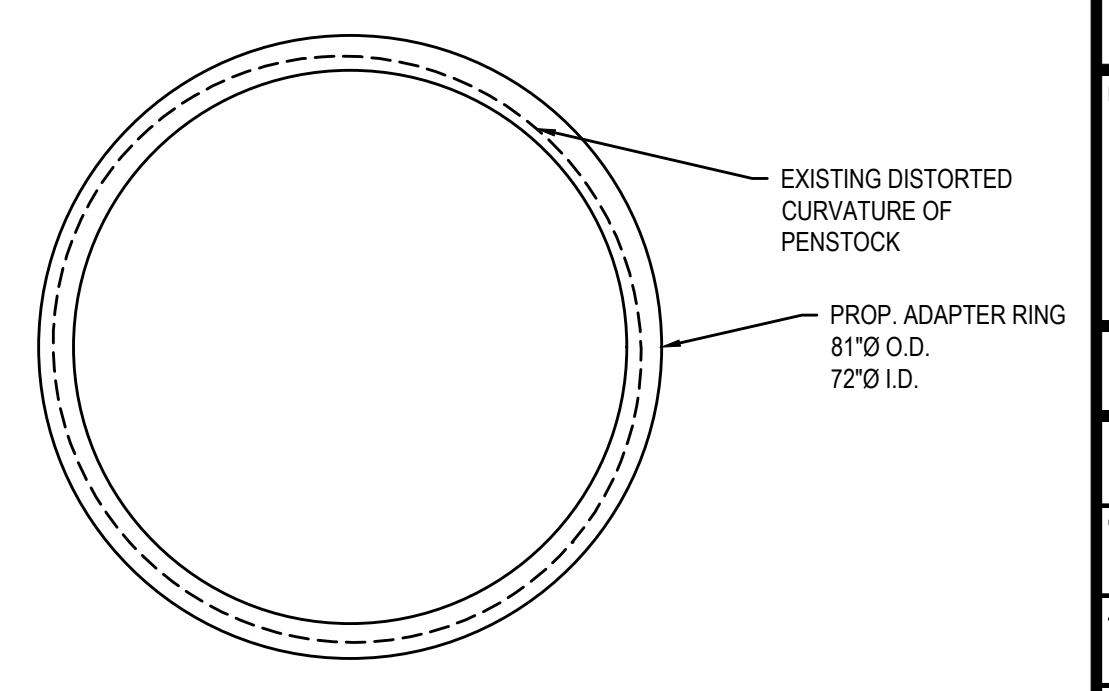
- ASSEMBLY SEQUENCE:
- BOLT ADAPTER PLATE TO EXISTING PIPE MATCH
 - DRILL THROUGH ADAPTER PLATE, EXISTING PIPE & TEMPORARILY BOLT SO ADAPTER PLATE MATCHES CURVATURE OF EXISTING PIPE
 - TACK WELD PLATES TOGETHER
 - WELD ADAPTER PLATES TO ADAPTER RING
 - UNBOLT & REMOVE FOR FINAL SEAL WELD OF ADAPTER PLATES
 - RE-INSTALL WELDMENT WITH GASKET & BOLT TO EXISTING PIPE



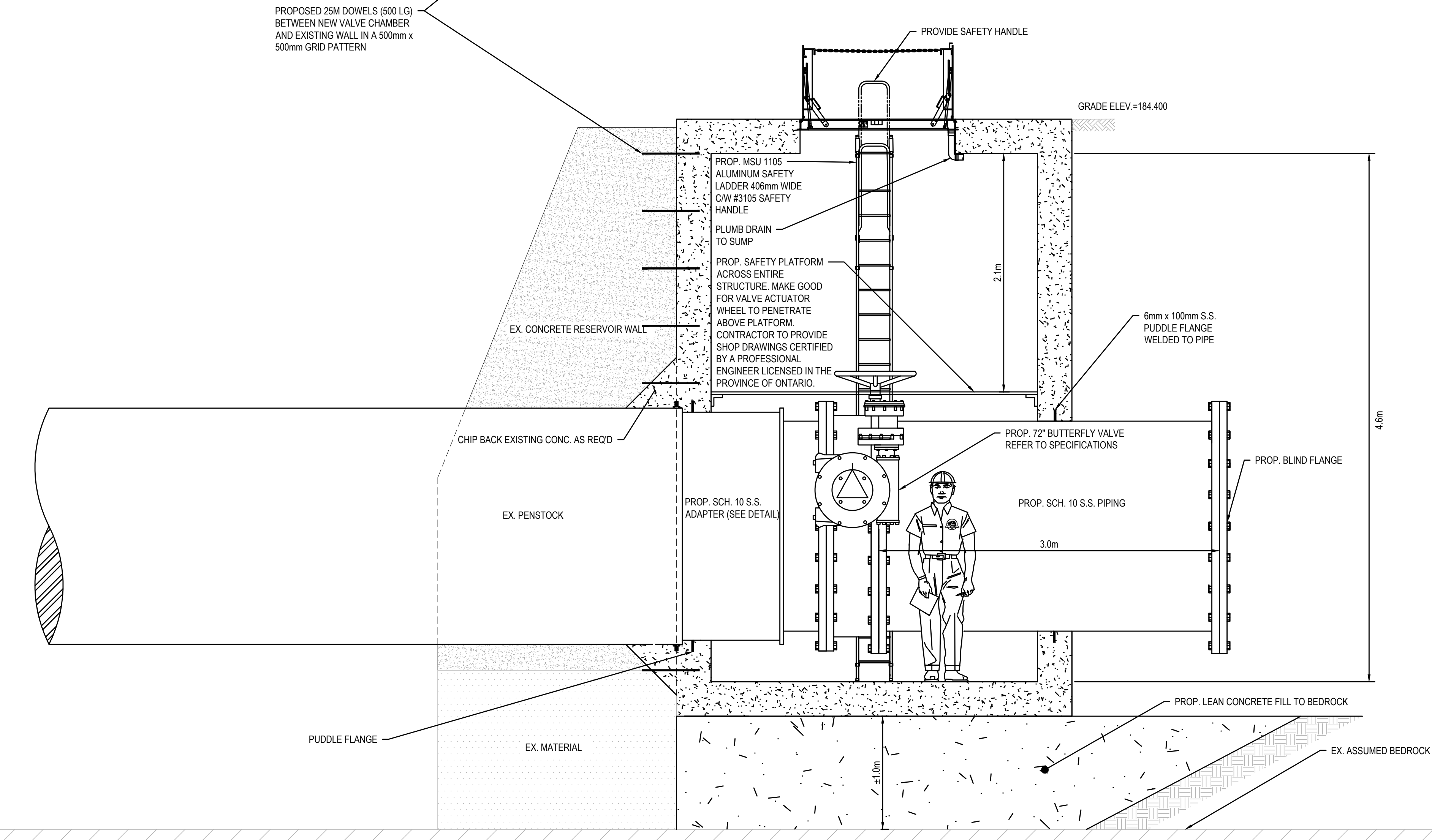
EXISTING PENSTOCK (APPROX. DIMENSIONS)
SCALE: 1:50



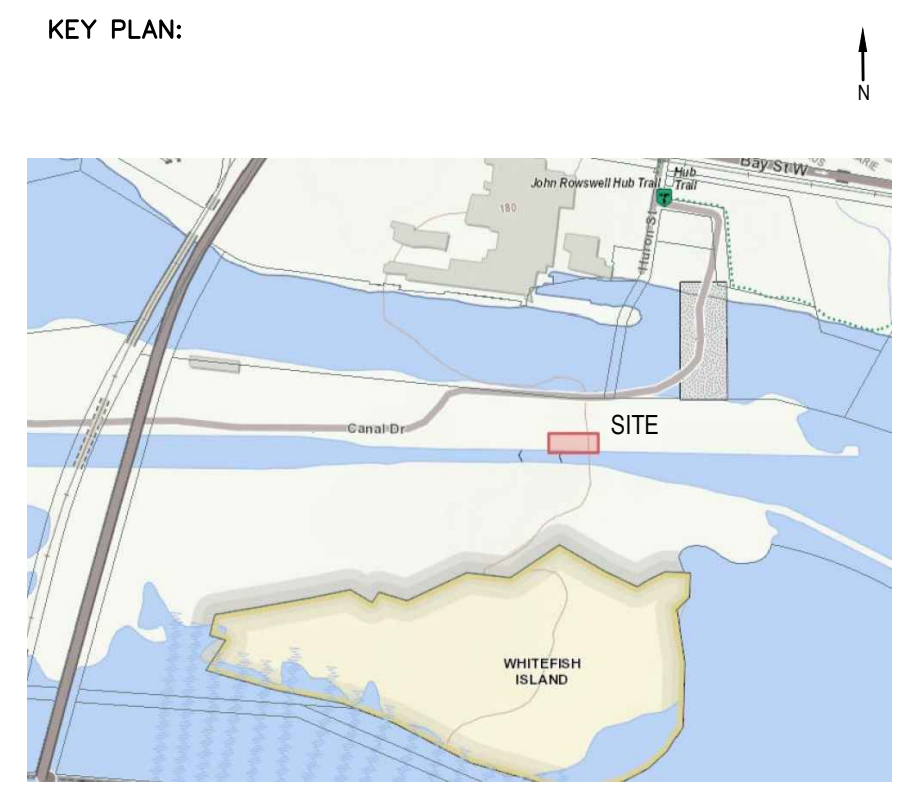
PIPE CONNECTION DETAIL (1 OF 2)
SCALE: 1:25



PIPE CONNECTION DETAIL (2 OF 2)
SCALE: 1:25



VALVE AND CHAMBER ELEVATION VIEW
SCALE: 1:25



SAULT STE. MARIE, ONTARIO

Legends:

NEW CONSTRUCTION

- PROPOSED / TO BE PROVIDED
- EXISTING / TO REMAIN

REMOVALS

- EXISTING / TO BE REMOVED
- EXISTING / TO REMAIN

No.	Date	Description	Drawn by / Dessiné par	Approved / Approuvé
D	22JUN18	ISSUED FOR TENDER	VARIES	D.SPACEK
C	29MAY18	DRAFT ISSUED FOR TENDER	VARIES	D.SPACEK
B	26MAR18	99% REVIEW	VARIES	D.SPACEK
A	12FEB18	66% REVIEW	VARIES	D.SPACEK

Revision / Révision	
A	Detail number / A Numéro de détail
B	Sheet number / B Numéro de la feuille

Consultant's Name / Nom de l'expert-conseil

wsp

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TEL: 613-933-9602 | FAX: 705-608-4335 | WWW.WSP.COM
WSP-SP501-15-001-001 (WSP# 151 00185-14)

LICENSED PROFESSIONAL ENGINEER
D. M. SPACEK
June 22, 2018
PROVINCE OF ONTARIO

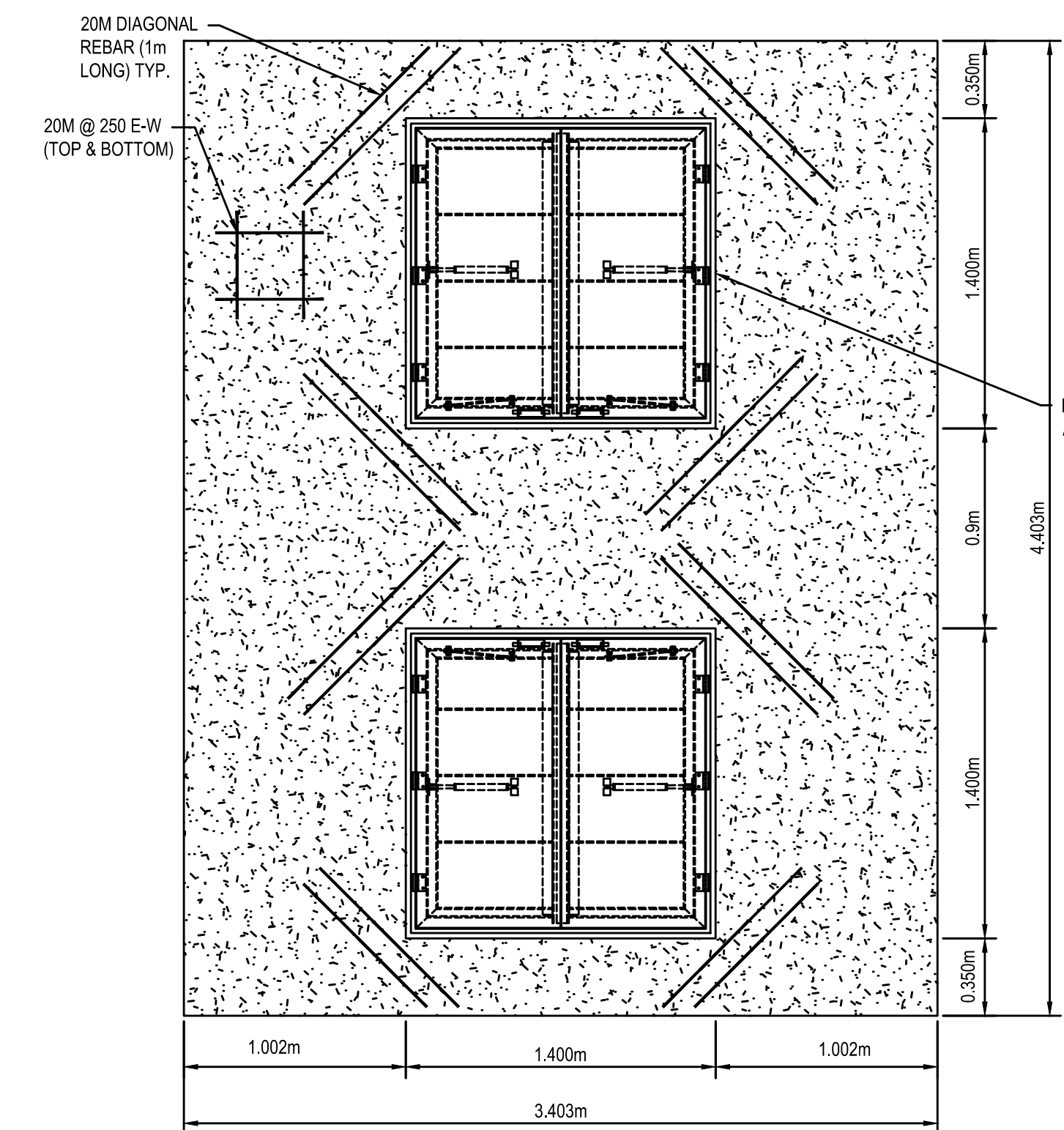
Project title / Titre du projet

POWERHOUSE STRUCTURAL STABILIZATION PROJECT

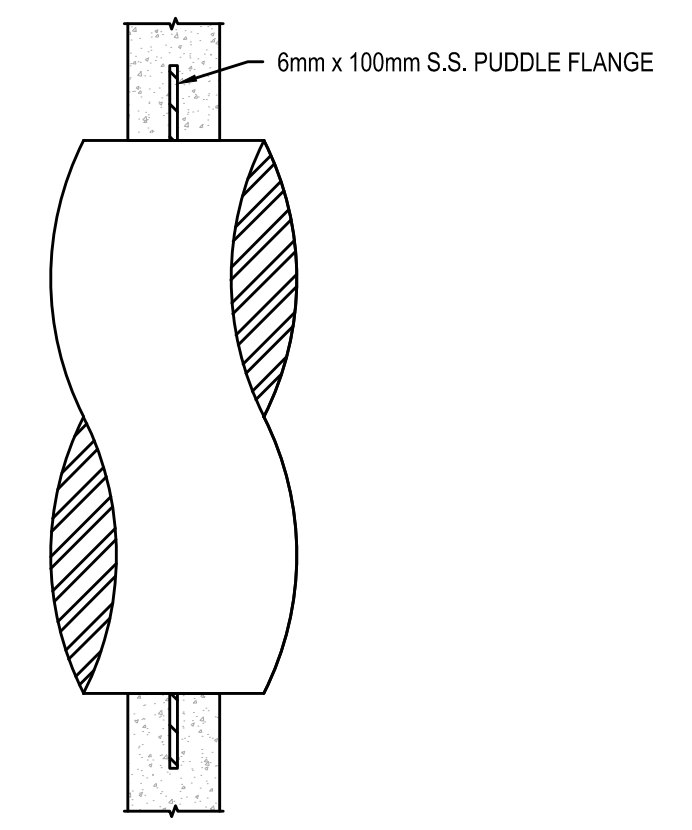
Drawing title / Titre du dessin

CONTEMPORARY VALVE CHAMBER DETAILS (2 OF 2)

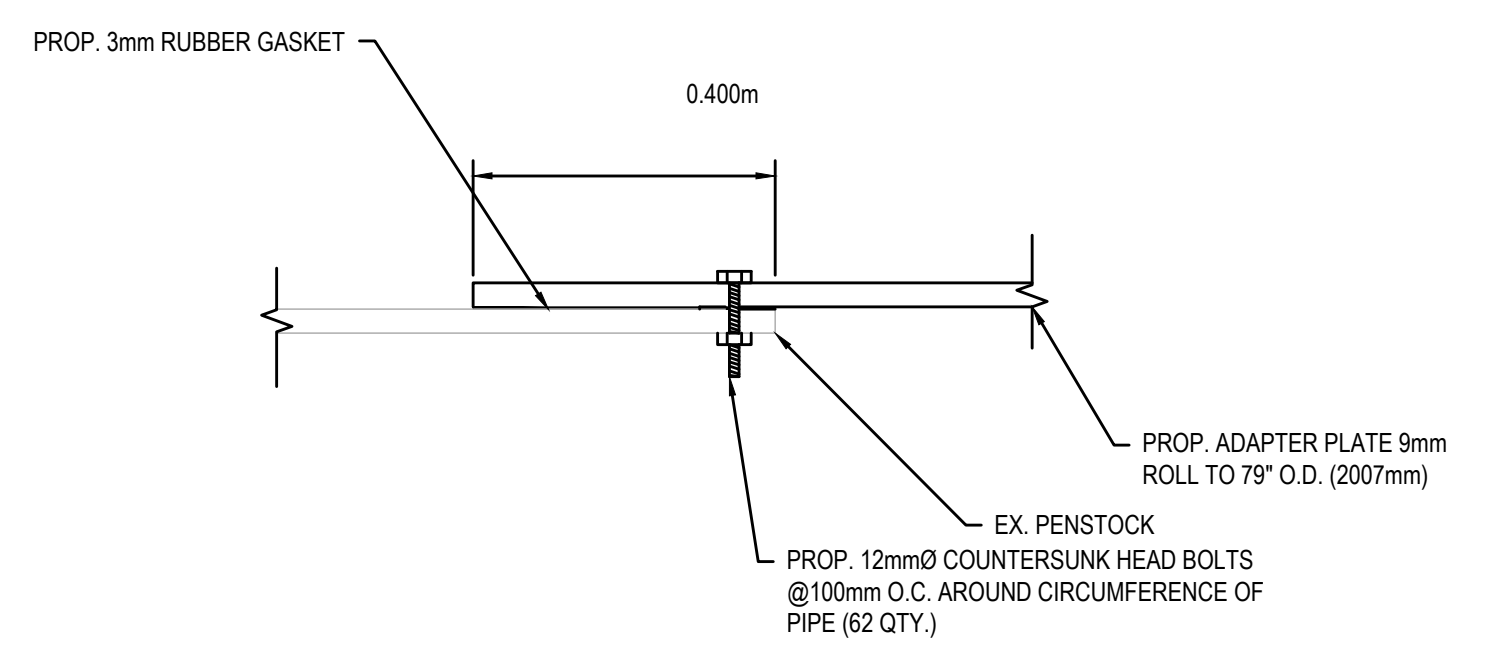
Designed by / Concept par	M. PILON	Date	
Drawn by / Dessiné par	A. MCCORMICK	Date	
Checked by / Vérifié par	D.SPACEK	Date	JUNE 22, 2018
Approved by / Approuvé par	D.SPACEK	Date	JUNE 22, 2018
Project No. / N° du projet	511SSM	Scale / Échelle	AS NOTED
Drawing Set No. / N° de série du dessin		Sheet No. / N° de la feuille	C8.3



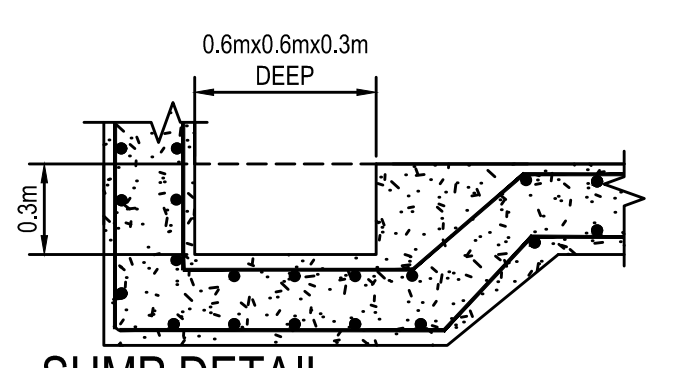
VALVE CHAMBER PLAN (TOP)
SCALE: 1:25



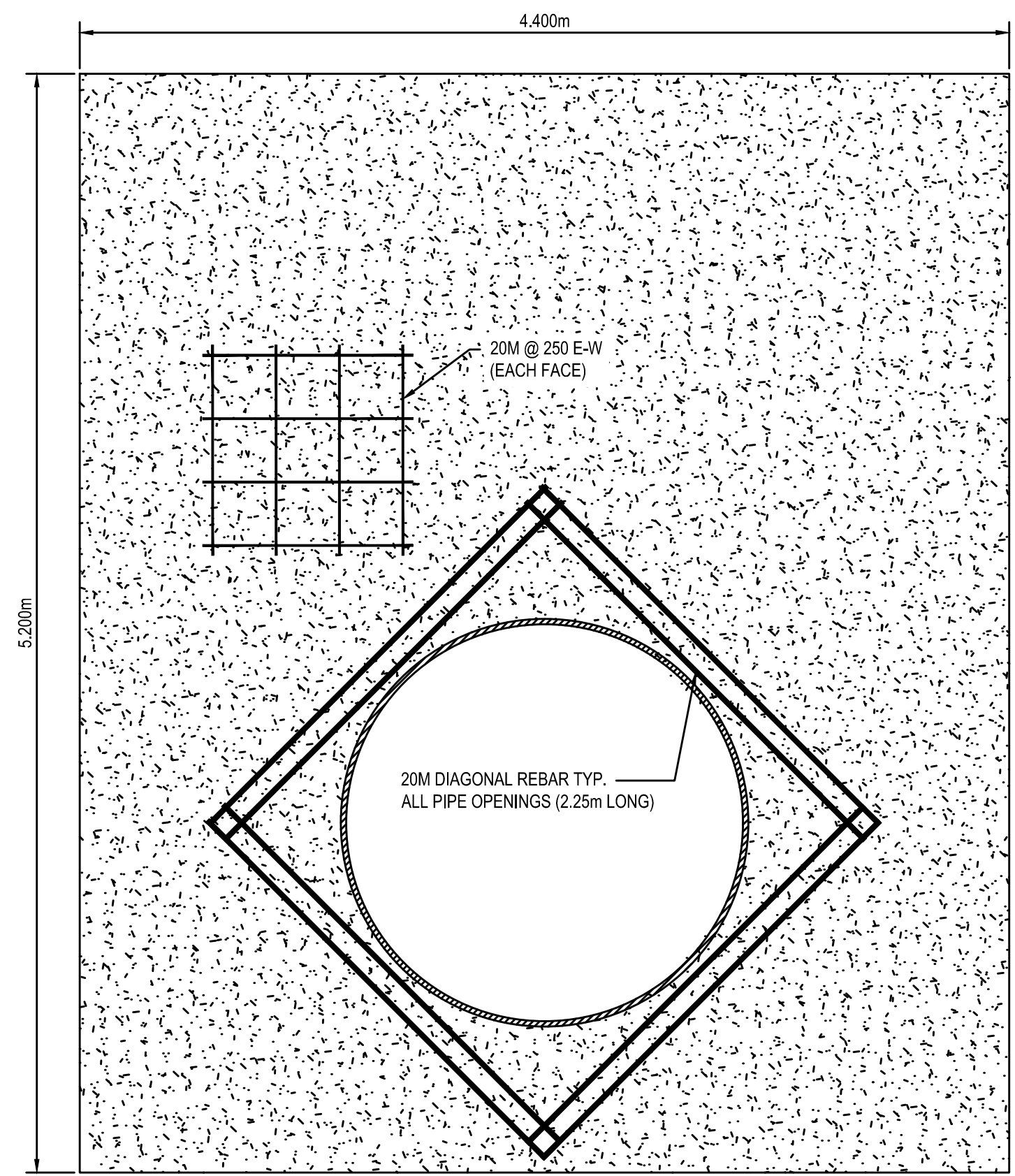
PUDDLE FLANGE DETAIL
SCALE: 1:25



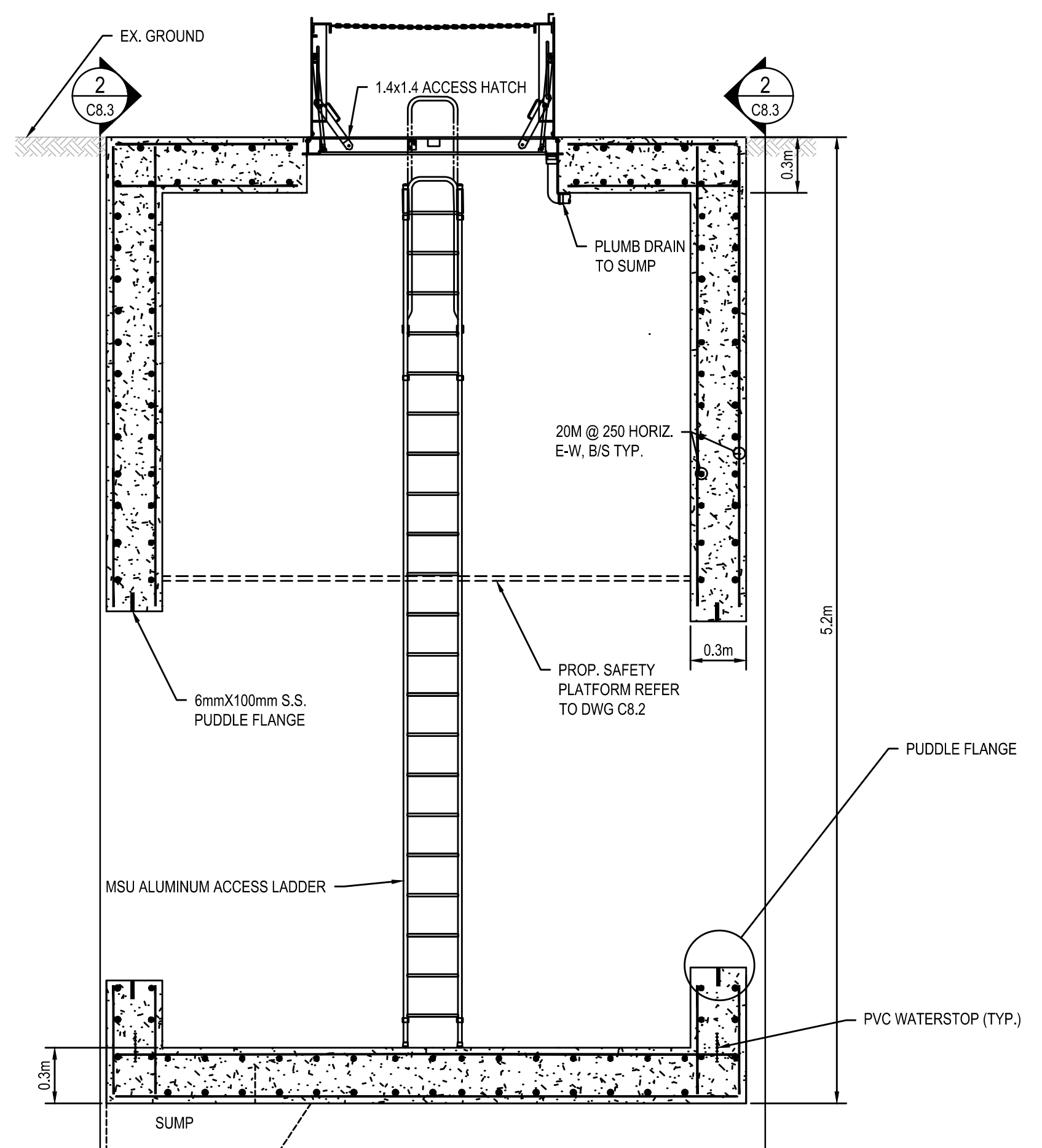
PENSTOCK CONNECTION DETAIL (AT BOTTOM)
SCALE: 1:10



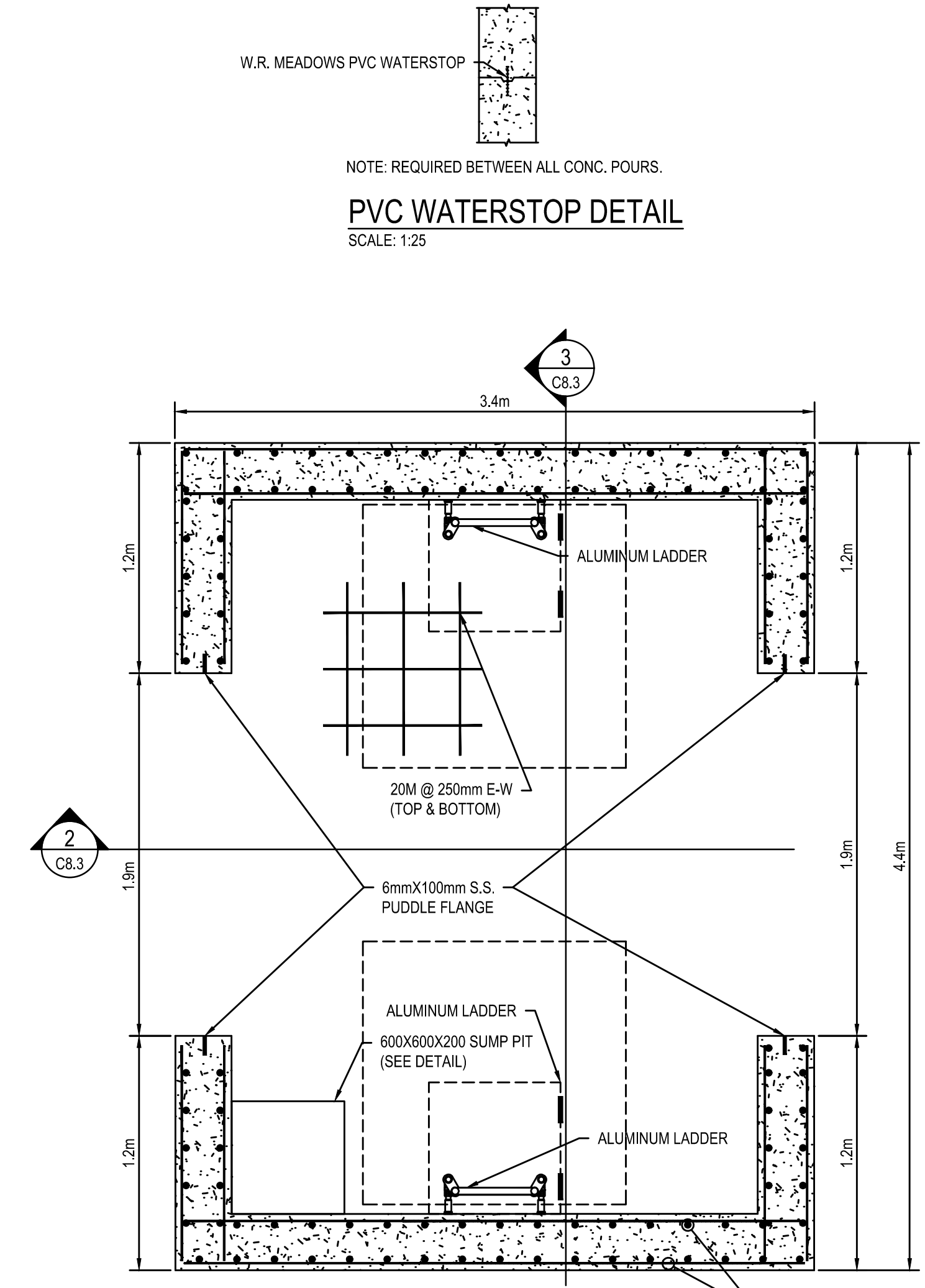
SUMP DETAIL
SCALE: 1:25



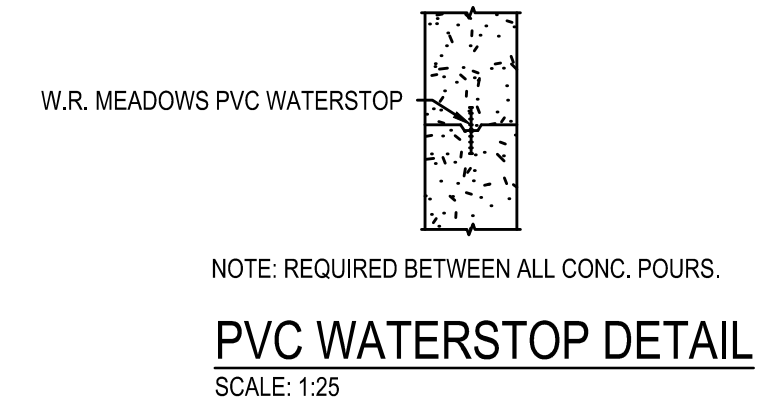
VALVE AND CHAMBER SECTION
SCALE: 1:25



VALVE CHAMBER SECTION
SCALE: 1:25



VALVE CHAMBER PLAN (MID-HEIGHT)
SCALE: 1:25



PVC WATERSTOP DETAIL
SCALE: 1:25