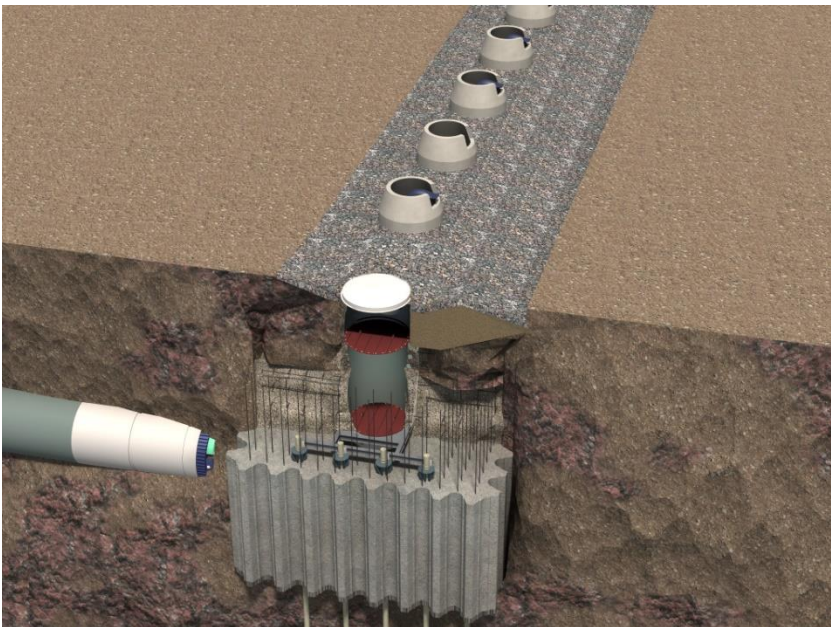


# APPENDIX A DESIGN DRAWINGS

## Annacis Island WWTP New Outfall System

Vancouver Fraser Port Authority  
Project and Environmental Review Application



 **metrovancover**  
SERVICES AND SOLUTIONS FOR  
A LIVABLE REGION

**CDM  
Smith**

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4330 Kingsway, Burnaby, BC, Canada V5H 4G8 604-432-6200

Greater Vancouver Regional District • Greater Vancouver Water District  
Greater Vancouver Sewerage and Drainage District • Greater Vancouver Housing Corporation

[www.metrovancouver.org](http://www.metrovancouver.org)

# **GREATER VANCOUVER SEWER AND DRAINAGE DISTRICT**

## **ANNACIS ISLAND WASTEWATER TREATMENT PLANT NEW OUTFALL SYSTEM CONSTRUCTION SERVICES FOR THE OUTFALL**

**RFP NO. 18-0001**

**ISSUED FOR PERMIT DRAWING SET**

**NOVEMBER 2017**

# SHEET INDEX

DFN: SF-1933 GENERAL	TEMPORARY DWG. NO.	DRAWING TITLE
	A00 X-G001	COVER SHEET
	A00 X-G003	DRAWING INDEX - 1
	A10G0031	GENERAL LOCATION AND VICINITY MAP
	A10 X-G001	HYDRAULIC PROFILE NEW OUTFALL SYSTEM
	A10 X-G0101	A10 - GENERAL SITEWORKS NOS AERIAL MAP
SITE PLAN AND BUILDINGS, STRUCTURES & EQUIPMENT, AND LOT GRADING & UTILITIES	A10 X-C0101	RIGHT OF WAY KEY PLAN
	X-A61C0028	LOT 236 PLAN AND ISOMETRIC
	X-A61C0029	LOT 187 PLAN AND ISOMETRIC
	X-A61C0030	PLAN LOT 179 VOLUMETRIC RIGHT OF WAY
	X-A61C0031	WATER FRONT LOT PLAN
	A61C0001	A61 - GENERAL SITE WORKS, NOS SITE PLAN KEY MAP
	A61C0002	A61 - TUNNEL PLAN & PROFILE 1
	A61C0003	A61 - TUNNEL PLAN & PROFILE 2
	A61C0004	A61 - TUNNEL PLAN & PROFILE 3
	A61C0005	A61 - TUNNEL PLAN & PROFILE 4
	X-A10C007	CIVIL WORKS - GENERAL SITE CONSTRUCTION ACCESS AND STAGING
	X-A10C008	CIVIL WORKS - OUTFALL SHAFT SITE CONSTRUCTION ACCESS AND STAGING
	X-A61S0081	RIVER RISER CONSTRUCTION SEQUENCE 1
	X-A61S0082	RIVER RISER CONSTRUCTION SEQUENCE 2
	X-A61S0083	RIVER RISER CONSTRUCTION SEQUENCE 3
MARINE STRUCTURES	A61C0070	DIFFUSER MANIFOLD RIVER PLAN
	A61C0077	EXISTING OUTFALL PLAN
	A61C0078	EXISTING OUTFALL SECTION & DETAILS
	A61C0052	RIVER RISER PLAN TOP LEVEL
	A61C0053	RIVER RISER SECTION
	A61C0071	DIFFUSER MANIFOLD SECTION 1
	A61C0072	DIFFUSER MANIFOLD SECTION 2
	A61C0073	DIFFUSER MANIFOLD SECTION 3
	A61C0074	DIFFUSER MANIFOLD DETAILS
LIGHTING PLAN	A50E4721	LAYOUT LEVEL CONTROL STRUCTURE (LCS) AREA 50 - POWER AND LIGHTING PLAN
	A61E5212	LAYOUT OUTFALL SHAFT AREA 61 - POWER AND LIGHTING PLAN

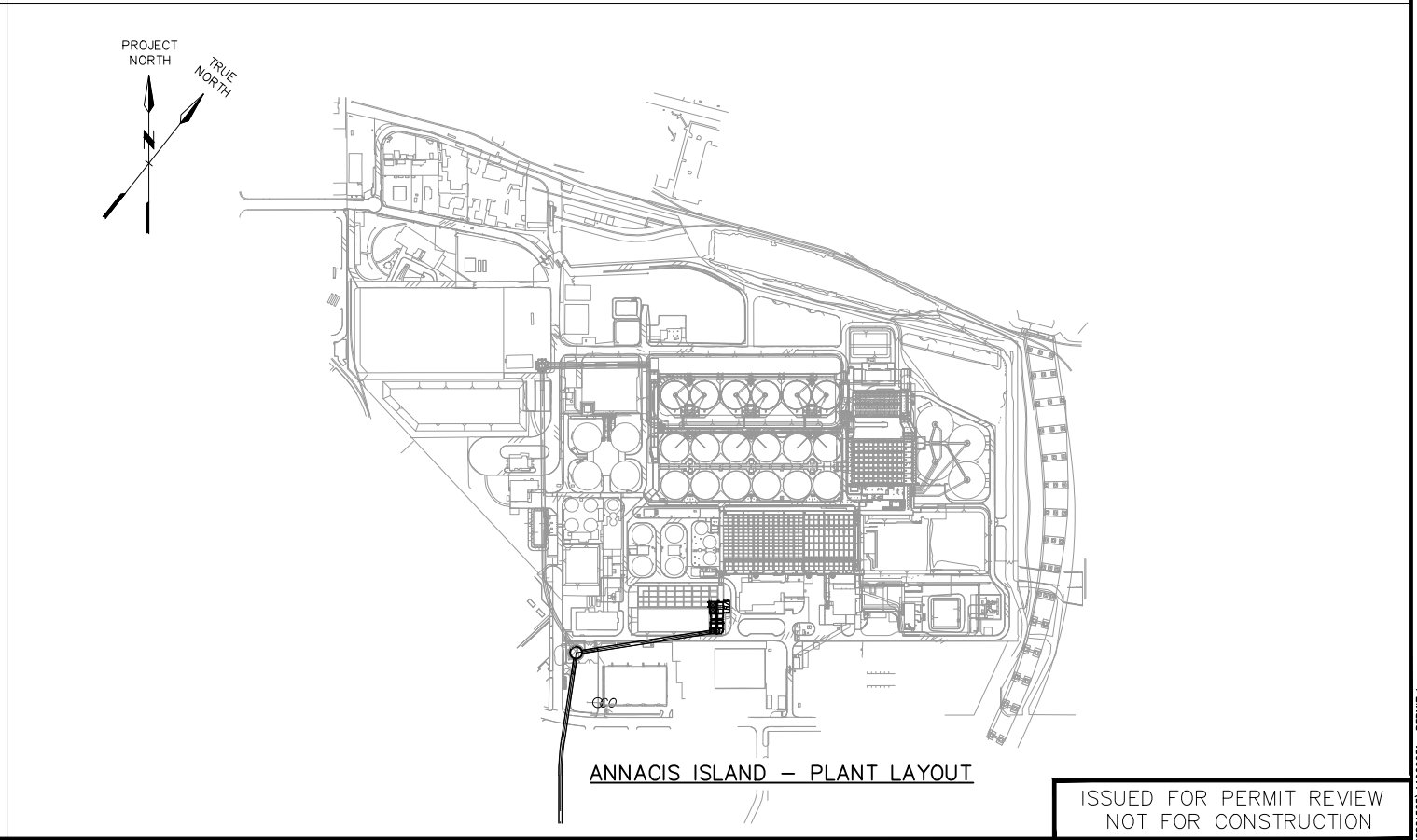
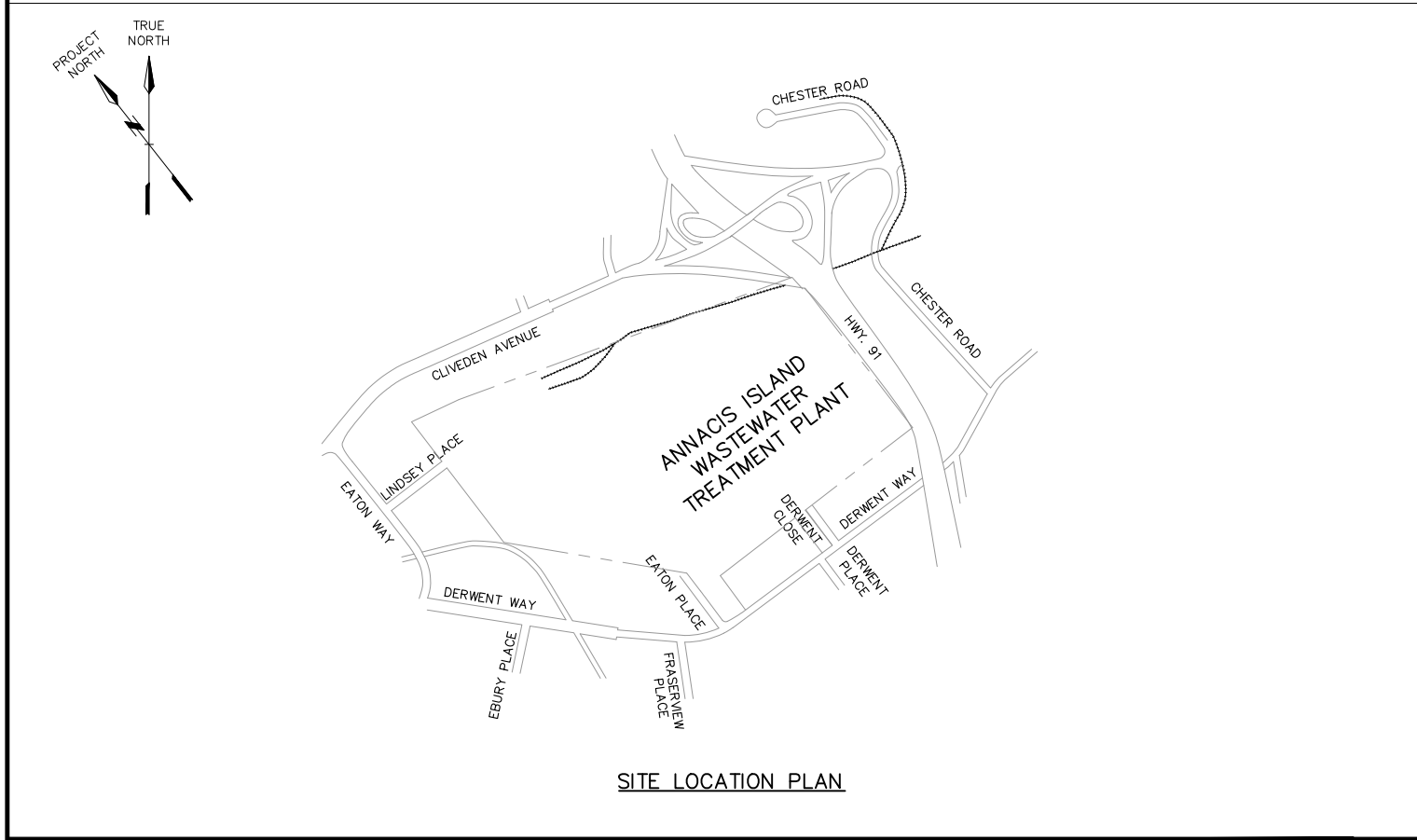
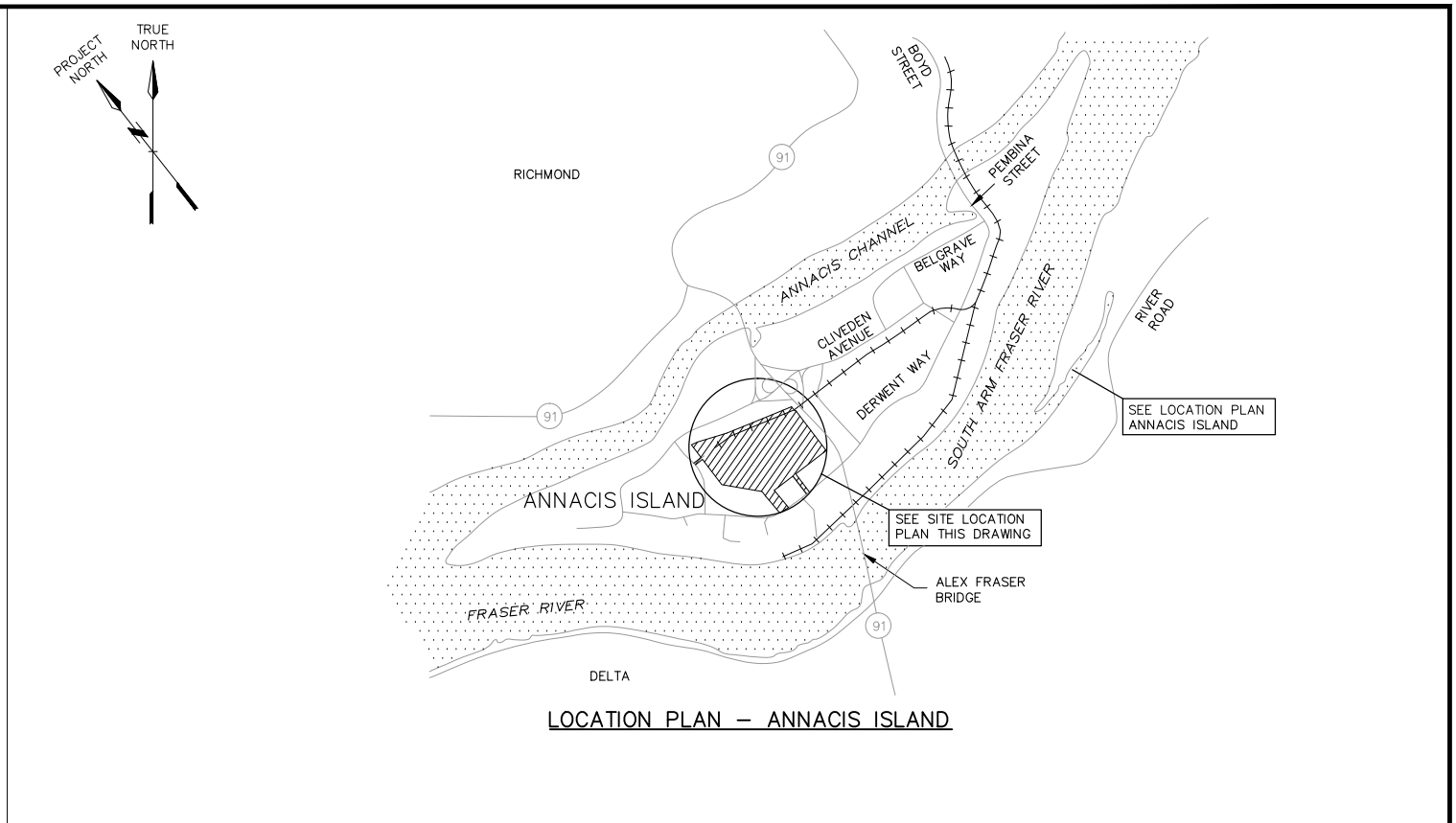
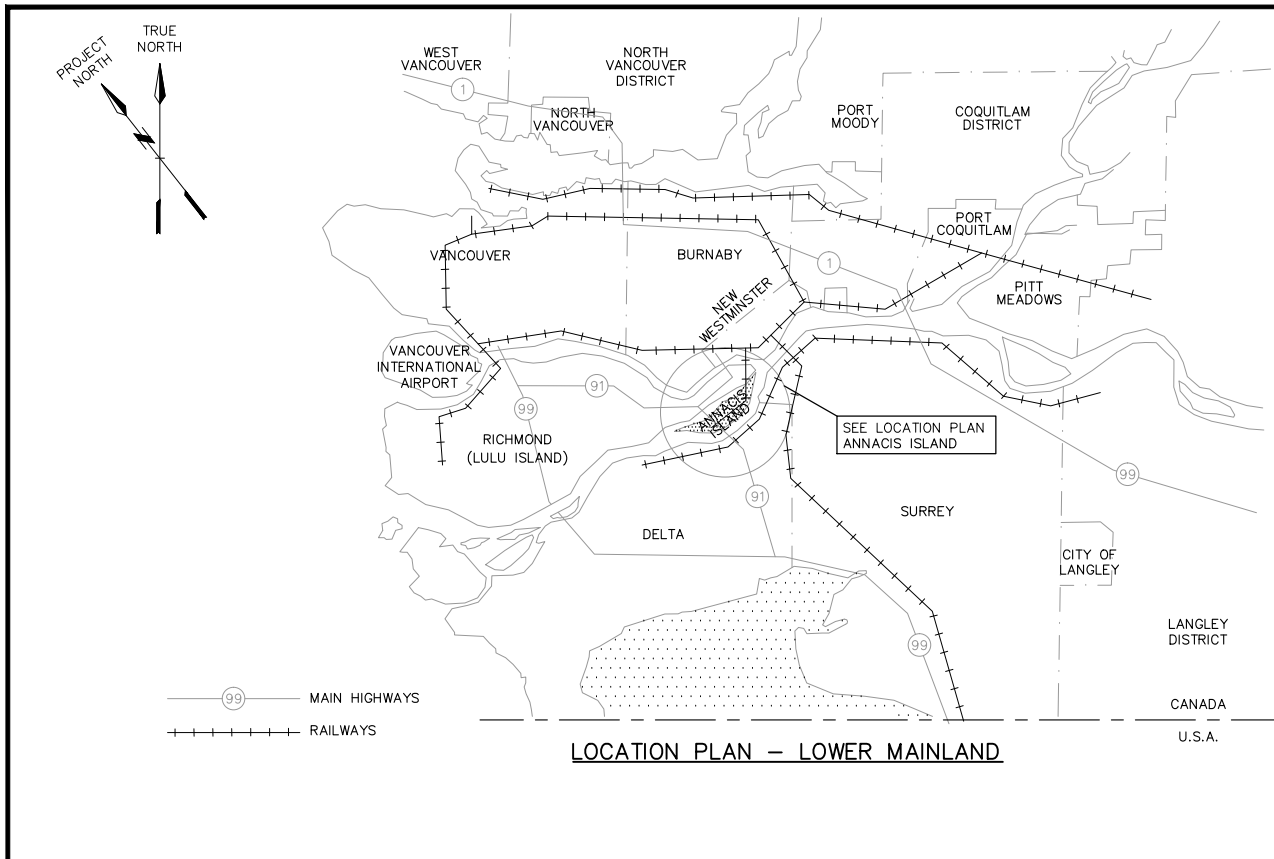
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NOT FOR CONSTRUCTION



Professional Seal

Issue	Date	Desn	Dr'n	Chkd	App'd	Description
P1	NOV. 2017	AK	VR	BJF	JNC	ISSUED FOR PERMIT REVIEW

GREATER VANCOUVER WATER DISTRICT AND SEWERAGE & DRAINAGE DISTRICT ANNACIS ISLAND WWTP NEW OUTFALL SYSTEM CONSTRUCTION SERVICES FOR THE OUTFALL		SCALE: NONE DISTRICT FILE S-1933
DRAWING INDEX		DRAWING NUMBER A00 X-G003
SUPERSEDES PRINTS OF THIS DOCUMENT CODE WITH LETTERS PREVIOUS TO <b>P1</b>		



ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION



Professional Seal

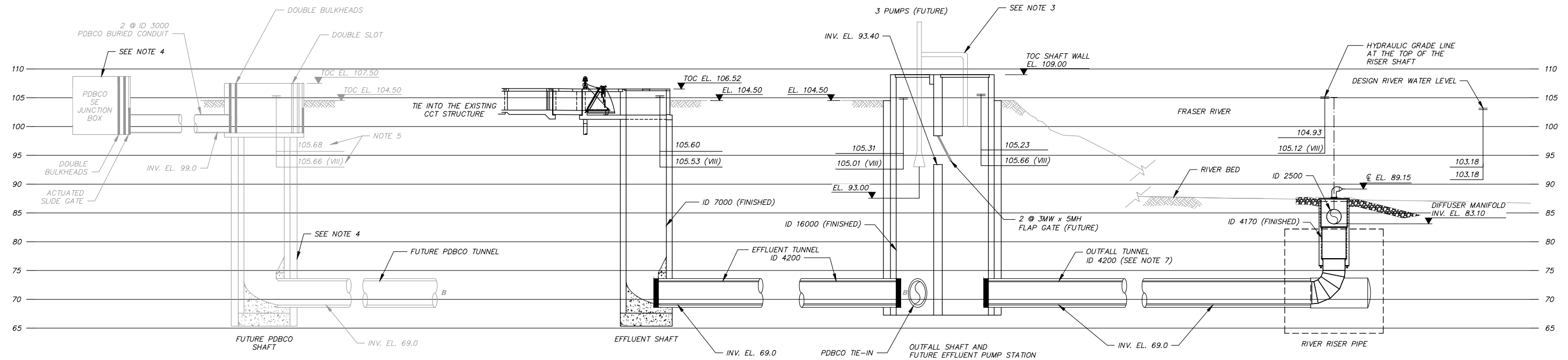
Issue	Date	Des	Dr'n	Chkd	Appd	Description
P2	NOV. 2017	AK	CEB	GLL	JNC	ISSUED FOR PERMIT REVIEW
P1	AUG. 2017	AK	CEB	GLL	JNC	ISSUED FOR 90% DESIGN REVIEW

DESIGN: AK		<b>GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT</b> <b>ANNACIS ISLAND WWTP</b> <b>NEW OUTFALL SYSTEM</b> <b>CONSTRUCTION SERVICES FOR THE OUTFALL</b>  <b>AREA 10 - GENERAL SITEWORKS</b> <b>GENERAL LOCATION AND VICINITY MAP</b>	SCALE: NTS
DRAWN: CEB			DISTRICT FILE SF-1933
CHECKED: GLL			DRAWING NUMBER A10G0031
JNC Approved			
JEN Manager			

0 20 Bar is 20mm On Original Drawing. If Not On This Sheet, Adjust Scales Accordingly.

SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P2

2017-10-23 12:19 RV G:\cdm\m\p\22821585\A10G0031 - PERMIT.dwg xref files:



HYDRAULIC PROFILE - NEW OUTFALL SYSTEM  
N.T.S.

**NOTES:**

- ALL ELEVATIONS ARE IN METERS.
- PLANT DATUM = CGVD28GVRD2005 + 100m
- FUTURE EFFLUENT PUMPS AND OUTFALL SHAFT FLAP GATE.
- PDBCO SHAFT, TUNNEL, BURIED CONDUIT AND SE JUNCTION BOX CONSTRUCTION TO FOLLOW AFTER NOS UNDER SEPARATE CONSTRUCTION CONTRACT.
- ASSUMES FULL STAGE V AND STAGE VIII (WITH PUMPING) FLOWS THROUGH PDBCO.
- TUNNEL 3820mm STEEL LINER, PE COATED NOT SHOWN.
- THE TOP OF THE SHAFTS ELEVATIONS INCLUDE 1.00m FOR GLOBAL SEA LEVEL RISE.

**LEGEND:**

- WATER SURFACE ELEVATION IN METERS
- XXX.XX ← STAGE V (18.9 CMS)
- YYY.YY VIII ← STAGE VIII (25.3 CMS WITH PUMPING) (VIII)

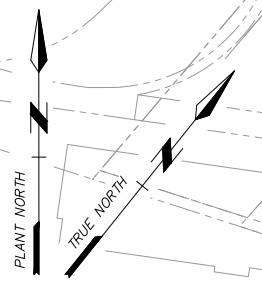
ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION



Professional Seal

Issue	Date	Desn	Dr'n	Chkd	App'd	Description
P4	NOV. 2017	RM	CEB	MEA	JNC	ISSUED FOR PERMIT REVIEW
P3	AUG. 2017	RM	CEB	MEA	JNC	ISSUED FOR 90% DESIGN REVIEW
P2	MAR. 2017	RM	CEB	MEA	JNC	ISSUED FOR 60% DESIGN REVIEW
P1	AUG. 2016	RM	CEB	MEA	JNC	ISSUED FOR PRELIMINARY DESIGN REVIEW

GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT		
Design: RM	ANNACIS ISLAND WWP NEW OUTFALL SYSTEM CONSTRUCTION SERVICES FOR THE OUTFALL	SCALE: NONE
Drawn: CEB		DISTRICT FILE SF-1933
Checked: MEA		DRAWING NUMBER A10 X-G-001
JNC Approved	HYDRAULIC PROFILE NEW OUTFALL SYSTEM	SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P4
JEN Manager		



ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

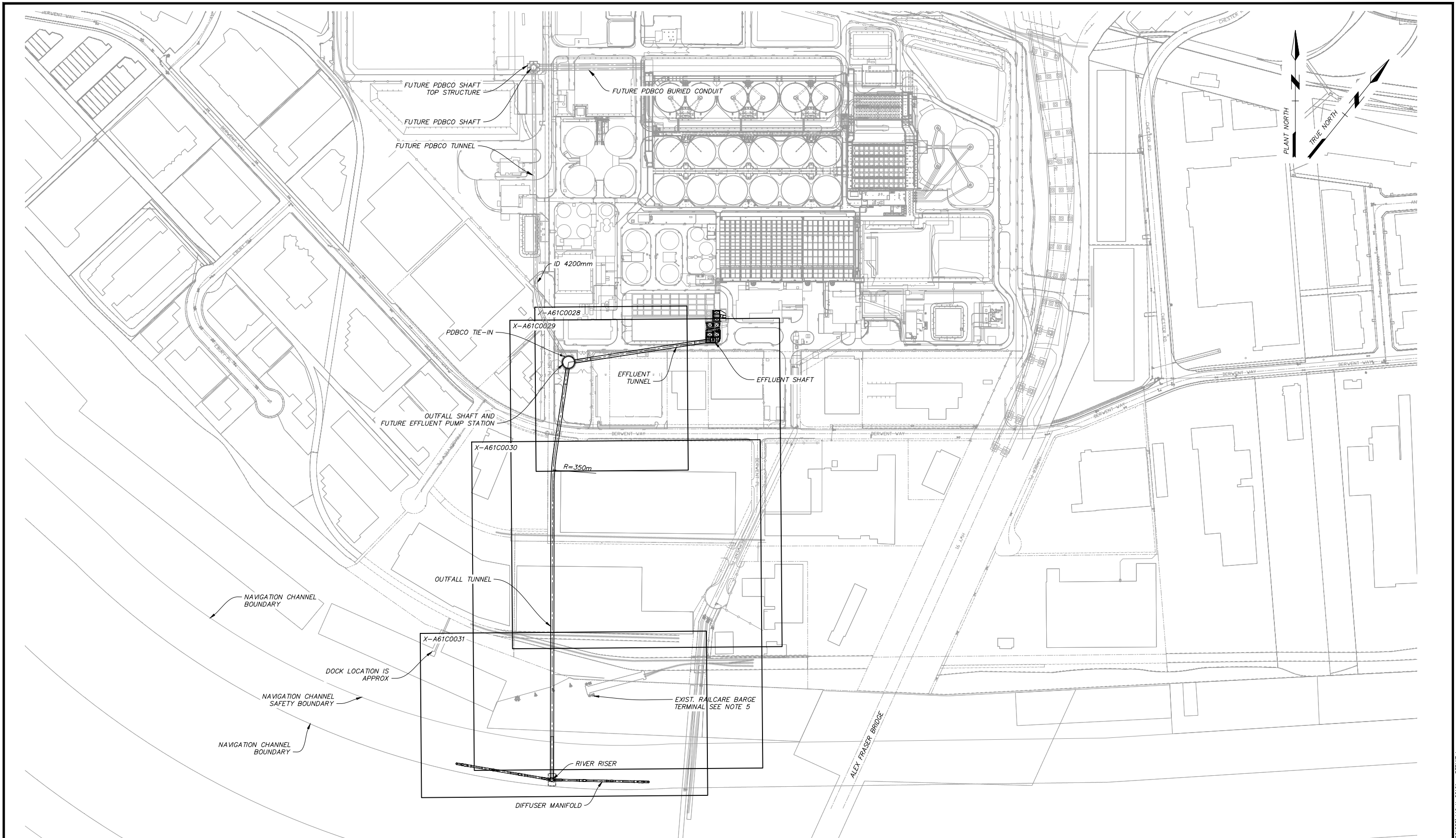


Professional Seal

Issue	Date	Desn	Dr'n	Chkd	App'd	Description
P3	NOV. 2017	AK	CEB	GLL	JNC	ISSUED FOR PERMIT REVIEW
P2	MAR. 2017	AK	CEB	GLL	JNC	ISSUED FOR 60% DESIGN REVIEW
P1	AUG. 2016	AK	CEB	GLL	JNC	ISSUED FOR PRELIMINARY DESIGN REVIEW

Design: AK Drawn: CEB Checked: GLL JNC Approved JEN Manager		SCALE: 1:2500 DISTRICT FILE SF-1933 DRAWING NUMBER A10 X-G0101
<b>GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT</b> <b>ANNACIS ISLAND WWT</b> <b>NEW OUTFALL SYSTEM</b> <b>CONSTRUCTION SERVICES FOR THE OUTFALL</b> <b>A10 - GENERAL SITE WORKS</b> <b>NOS AERIAL MAP</b>		
SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO <b>P3</b>		

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Professional Seal

Issue	Date	Des	Dr'n	Chkd	App'd	Description
P1	DEC. 2017	AK	CEB	GLL	JNC	ISSUED FOR PERMIT REVIEW

GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT

ANNACIS ISLAND WTP  
NEW OUTFALL SYSTEM  
CONSTRUCTION SERVICES FOR THE OUTFALL

RIGHT OF WAY KEY PLAN

Design: AK  
Drawn: CEB  
Checked: GLL  
JNC Approved  
JEN Manager

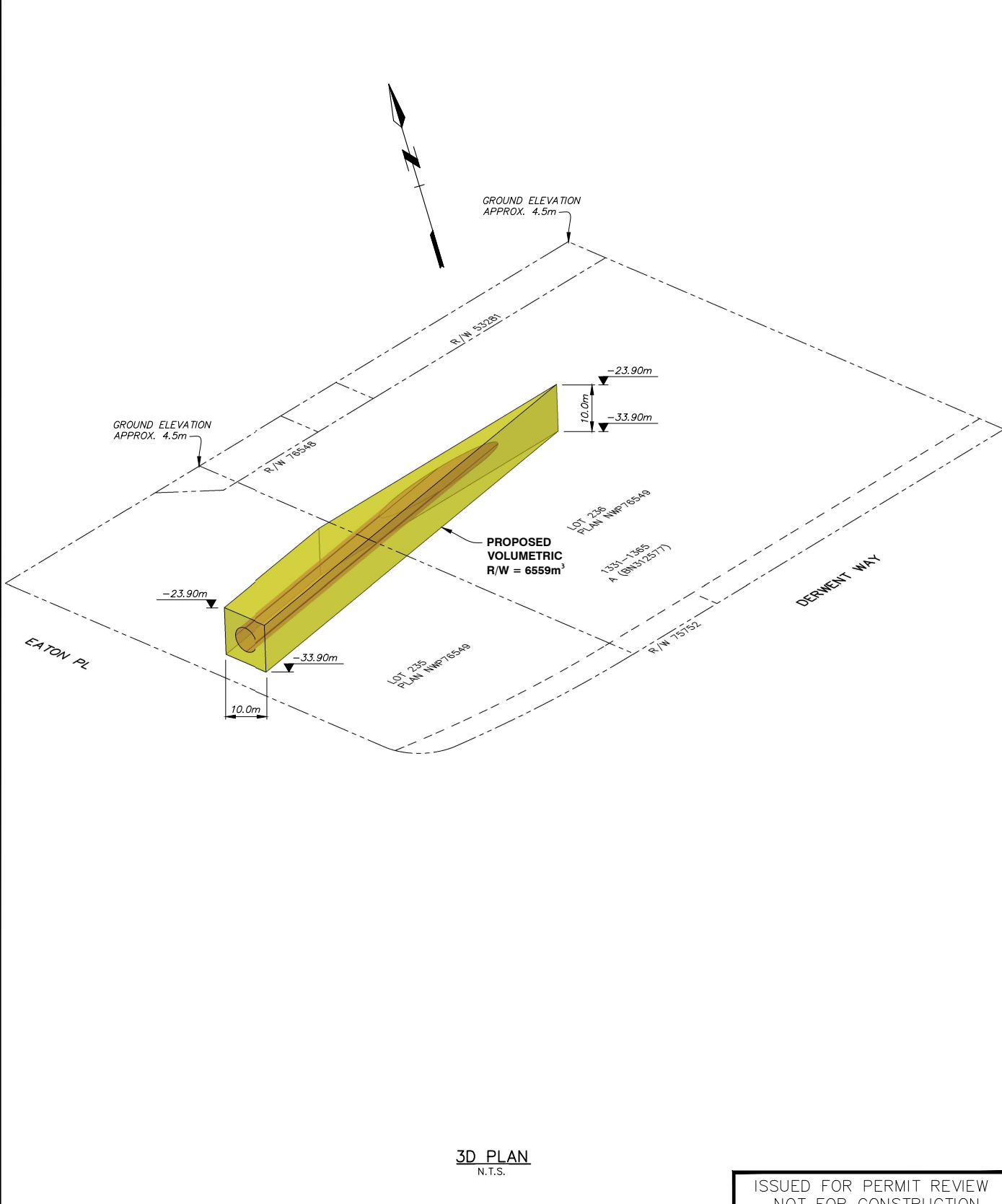
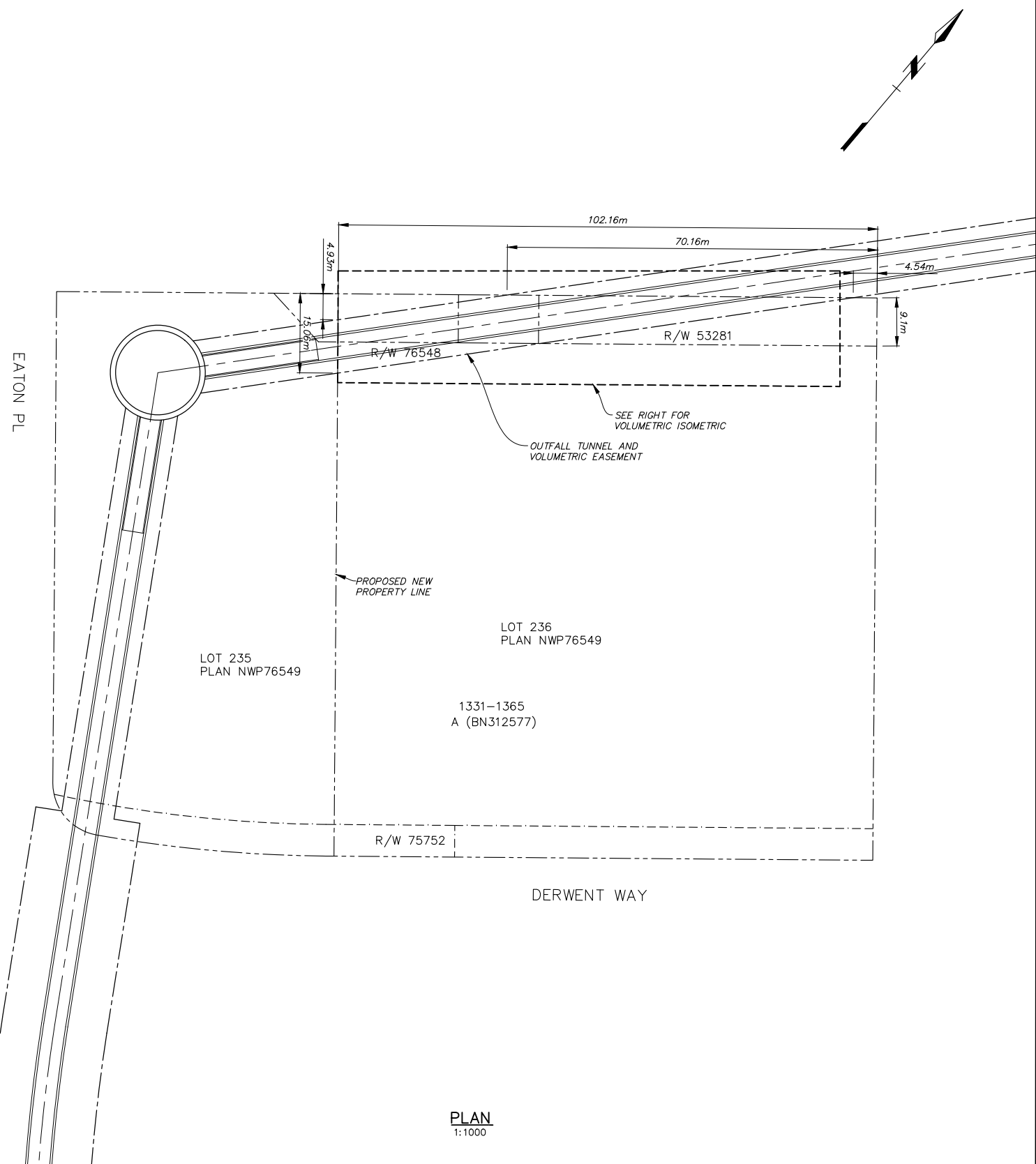
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DISTRICT FILE SF-1933  
DRAWING NUMBER A10 X-C0101

0 20 Bar is 20mm On Original Drawing. If Not On This Sheet, Adjust Scales Accordingly.

SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P1

2017-10-23 12:44 RV G:\cdm\m\p\221585\A10 X-C0101 - PERMIT.dwg xref files:





NOTES:  
1. ELEVATIONS ARE IN METERS AND REFER TO CVD28GVRD - GEODETIC DATUM.



Professional Seal

Issue	Date	Desh	Dr'n	Chkd	App'd	Description
P5	NOV 2017	JEN	CEB	JNC	JEN	ISSUED FOR PERMIT REVIEW
P4	AUG 2017	JEN	CEB	JNC	JEN	REVISED AS PER NOS ALIGNMENT
P3	AUG 4 16	KM	DT	KM	PW	REVISED AS PER PROPERTIES COMMENTS
P2	JULY 28 16	KM	DT	KM	PW	REVISED AS PER MARKUPS
P1	JULY 27 16	KM	DT	KM	?	PRELIMINARY SKETCH FOR REVIEW

**ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION**

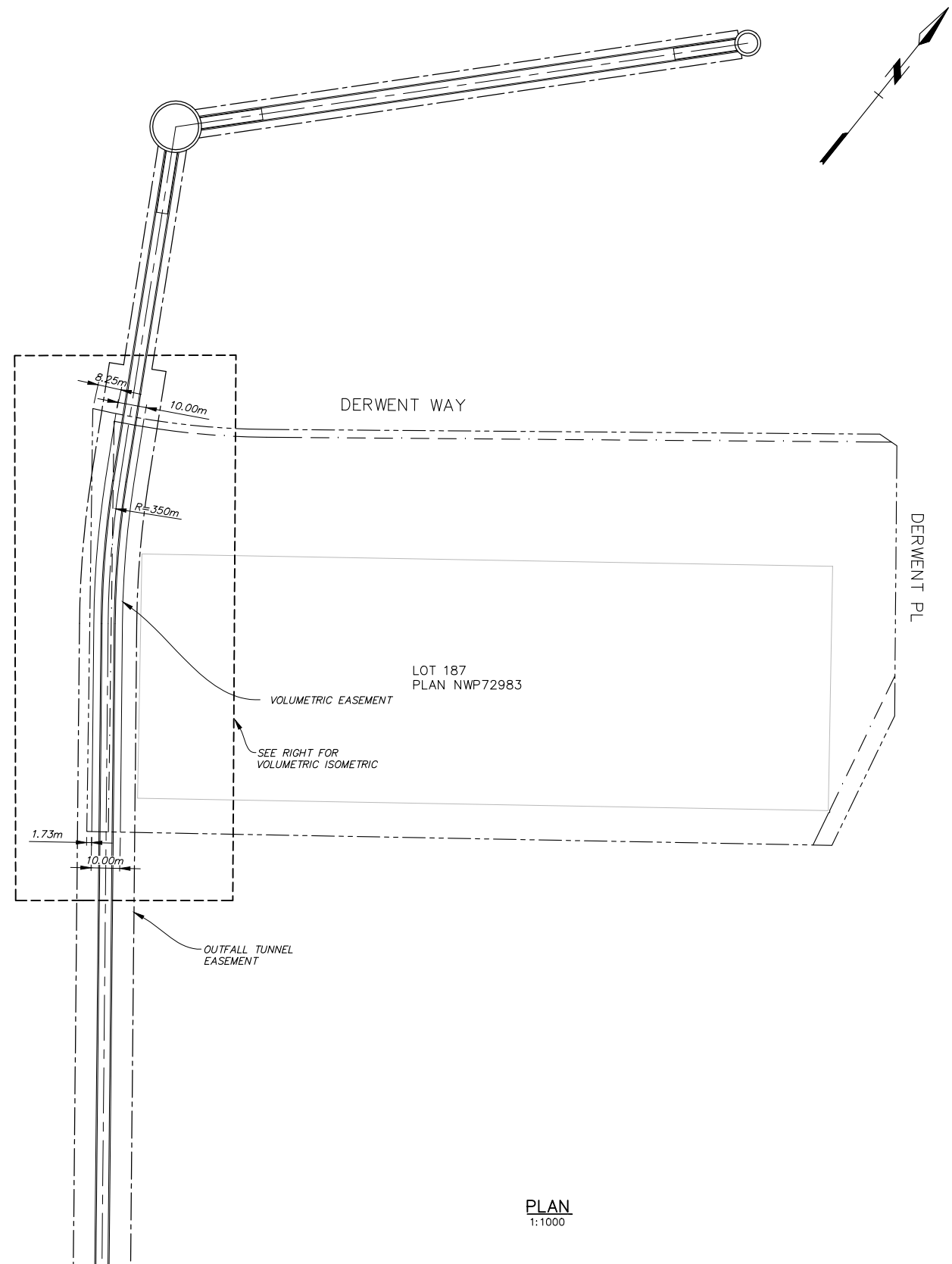
**GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT**

**ANNACIS ISLAND WWTP  
NEW OUTFALL SYSTEM  
CONSTRUCTION SERVICES FOR THE OUTFALL**

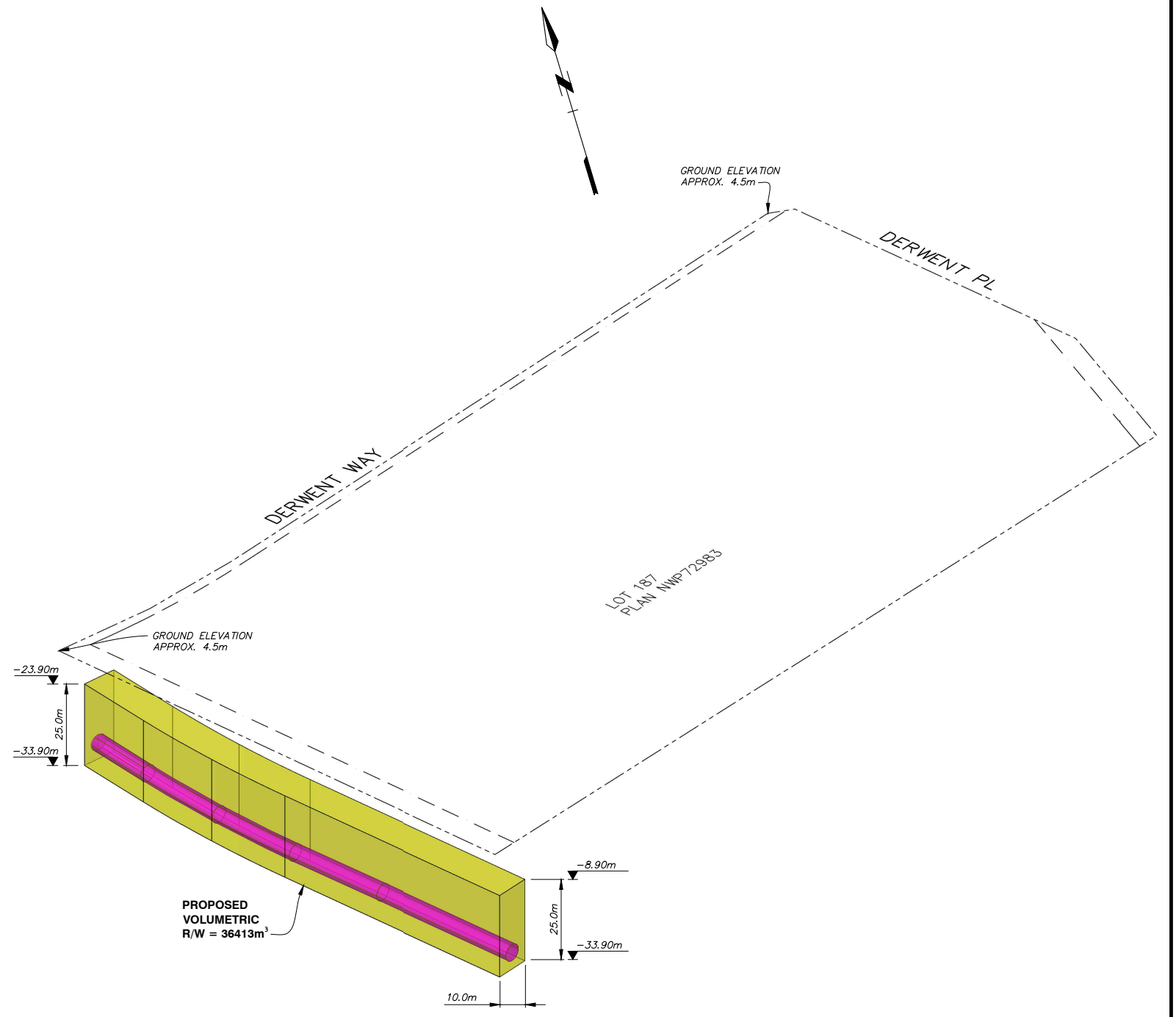
**LOT 236  
PLAN AND ISOMETRIC**

Design: K.M.	SCALE: AS NOTED
Drawn: D.T.	DISTRICT FILE SF-1933
Checked: K.M.	DRAWING NUMBER X-A61C0028
Approved:	
Manager:	

SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO **P5**



PLAN  
1:1000



3D PLAN  
N.T.S.

NOTES:  
1. ELEVATIONS ARE IN METERS AND REFER TO CVD28GVVD - GEODETIC DATUM.

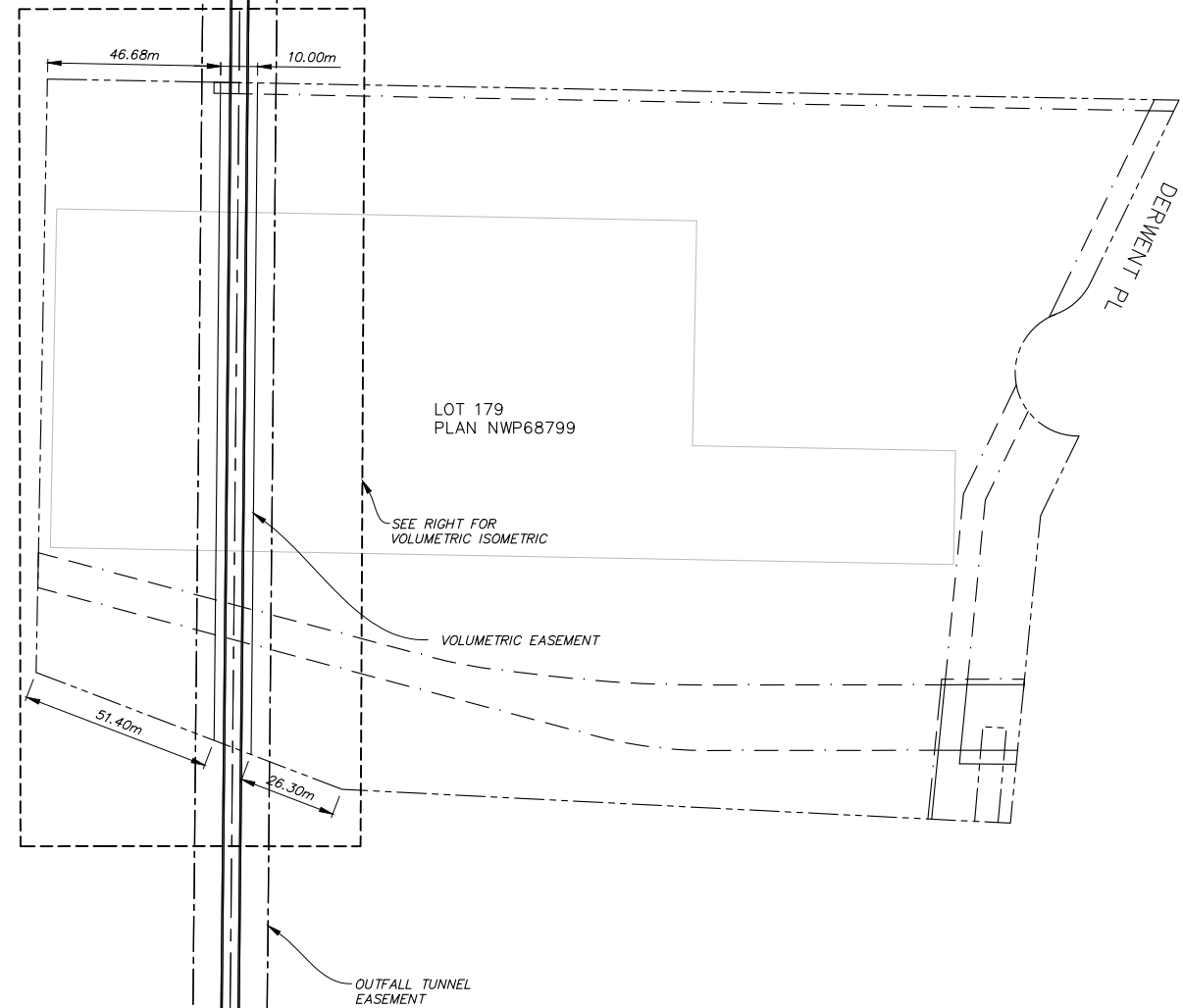


Professional Seal

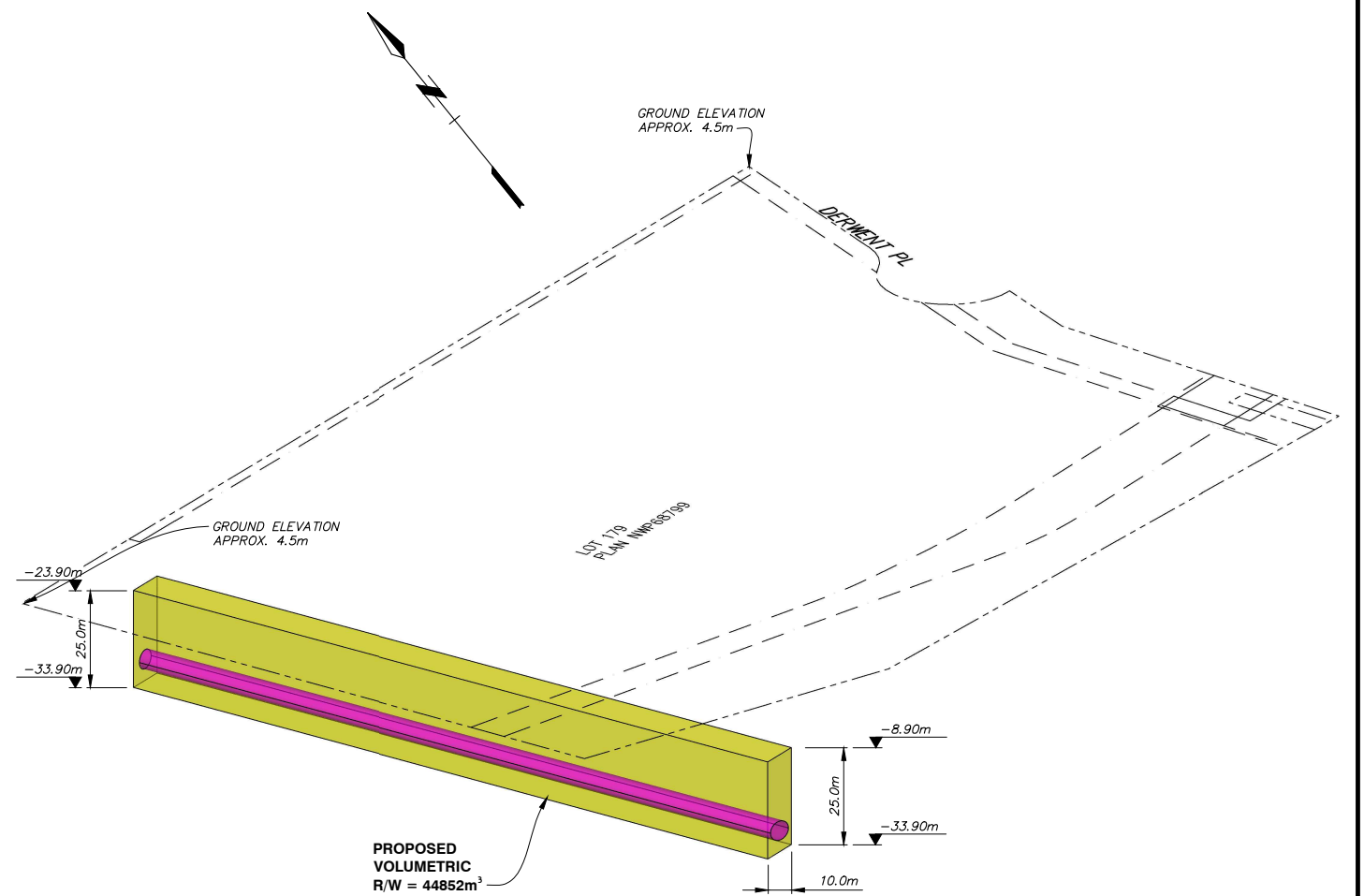
Issue	Date	Desg	Dr'n	Chkd	App'd	Description
P3	NOV 2017	JEN	CEB	JNC	JEN	ISSUED FOR PERMIT REVIEW
P2	AUG 2017	JEN	CEB	JNC	JEN	REVISED AS PER NOS ALIGNMENT
P1	SEPT 17 16	KM	DT	KM		PRELIMINARY SKETCH FOR REVIEW

Design: K.M. Drawn: D.T. Checked: K.M.		<b>GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT</b>  <b>ANNACIS ISLAND WWTP</b> <b>NEW OUTFALL SYSTEM</b> <b>CONSTRUCTION SERVICES FOR THE OUTFALL</b>	SCALE: AS NOTED
Approved: _____ Manager: _____			DISTRICT FILE SF-1933
<b>LOT 187</b> <b>PLAN AND ISOMETRIC</b>			DRAWING NUMBER X-A61C0029
SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO			P3

2017-11-02 11:34 Bldgbacke C:\comm\Bldgbacke\2821585\X-A61C0029 - PERMIT.dwg xref files:



PLAN  
1:1000



3D PLAN  
N.T.S.

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

NOTES:  
1. ELEVATIONS ARE IN METERS AND REFER TO CVD28GVRD - GEODETIC DATUM.



Professional Seal

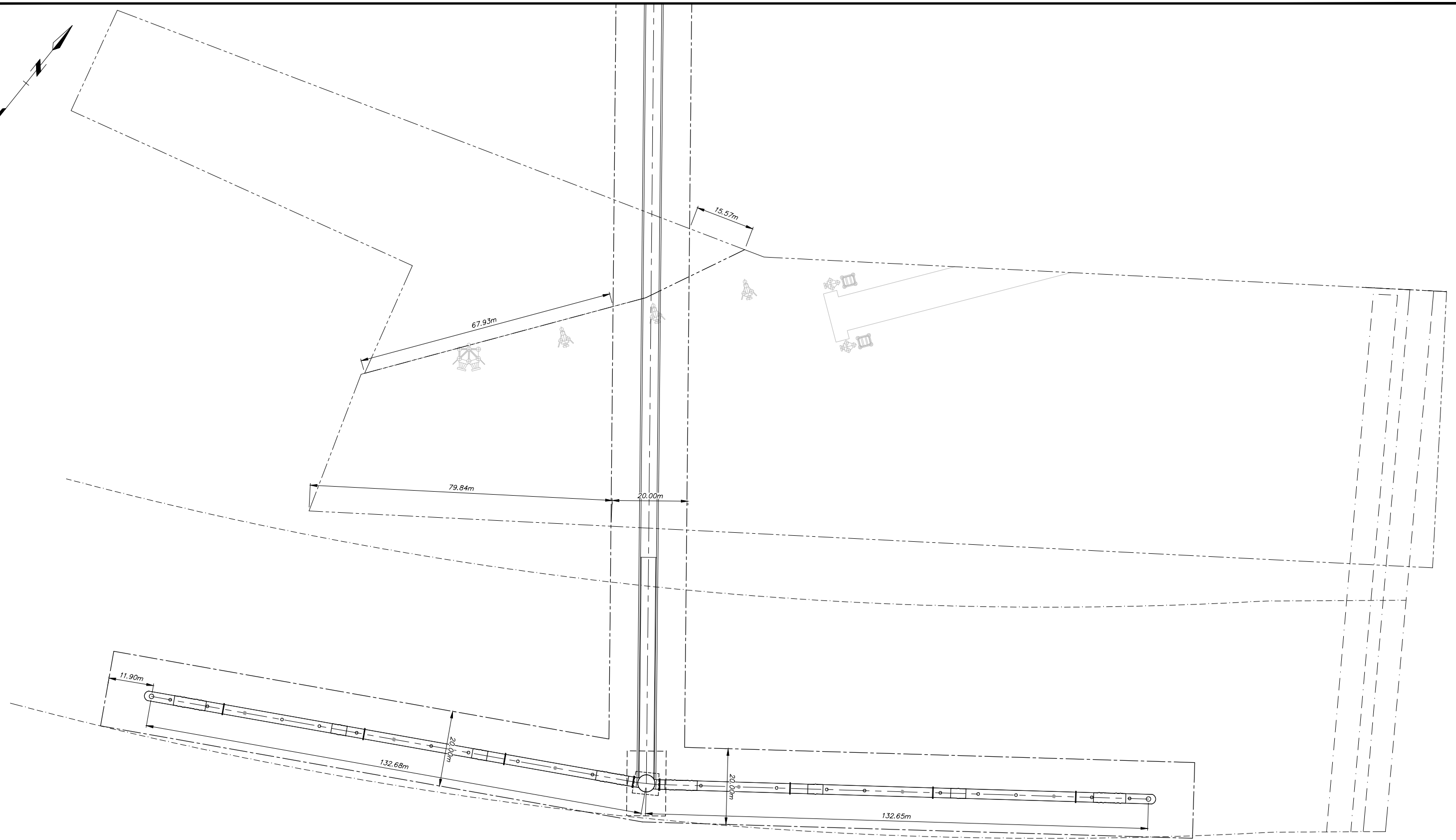
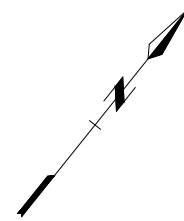
Issue	Date	Desg	Dr'n	Chkd	App'd	Description
P3	NOV 2017	JEN	CEB	JNC	JEN	ISSUED FOR PERMIT REVIEW
P2	AUG 2017	JEN	CEB	JNC	JEN	REVISED AS PER NOS ALIGNMENT
P1	SEPT 17 16	KM	DT	KM		PRELIMINARY SKETCH FOR REVIEW

Design: K.M. Drawn: D.T. Checked: K.M.		SCALE: AS NOTED DISTRICT FILE SF-1933
Approved: _____ Manager: _____		
GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT ANNACIS ISLAND WWTP NEW OUTFALL SYSTEM CONSTRUCTION SERVICES FOR THE OUTFALL		DRAWING NUMBER X-A61C0030
LOT 179 PLAN AND ISOMETRIC		

0 20 Bar is 20mm On Original Drawing. If Not On This Sheet, Adjust Scales Accordingly.

SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P3

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PLAN  
1:500

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

NOTES:  
1. ELEVATIONS ARE IN METERS AND REFER TO CVD28GVRD - GEODETIC DATUM.



Professional Seal

Issue	Date	Des'n	Dr'n	Chkd	App'd	Description
P5	NOV 2017	JEN	CEB	JNC	JEN	ISSUED FOR PERMIT REVIEW
P4	AUG 2017	JEN	CEB	JNC	JEN	REVISED AS PER NOS ALIGNMENT
P3	SEPT 27 16	KM	DT	KM		VOLUMETRIC R/W REMOVED, IN RIVER ADDED
P2	SEPT 19 16	KM	DT	KM		GENERAL REVISIONS
P1	SEPT 16 16	KM	DT	KM		PRELIMINARY SKETCH FOR REVIEW

0 20 Bar is 20mm On Original Drawing. If Not On This Sheet, Adjust Scales Accordingly.

GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT

ANNACIS ISLAND WWT  
NEW OUTFALL SYSTEM  
CONSTRUCTION SERVICES FOR THE OUTFALL

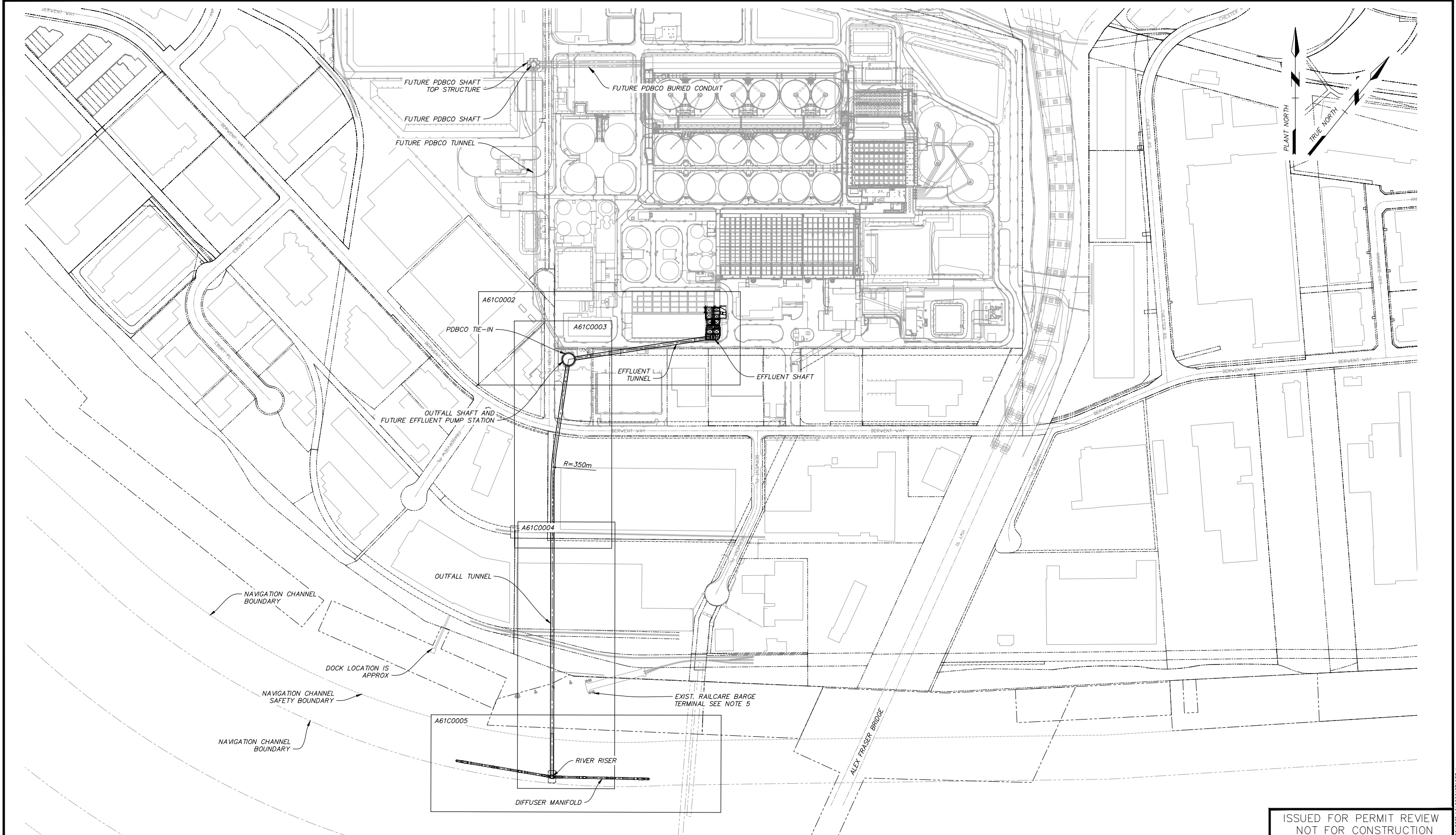
WATERFRONT LOT  
PLAN

DESIGN: K.M.  
DRAWN: D.T.  
CHECKED: K.M.  
APPROVED: \_\_\_\_\_  
MANAGER: \_\_\_\_\_

SCALE: AS NOTED  
DISTRICT FILE SF-1933  
DRAWING NUMBER X-A61C0031

SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P5

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NOT FOR CONSTRUCTION

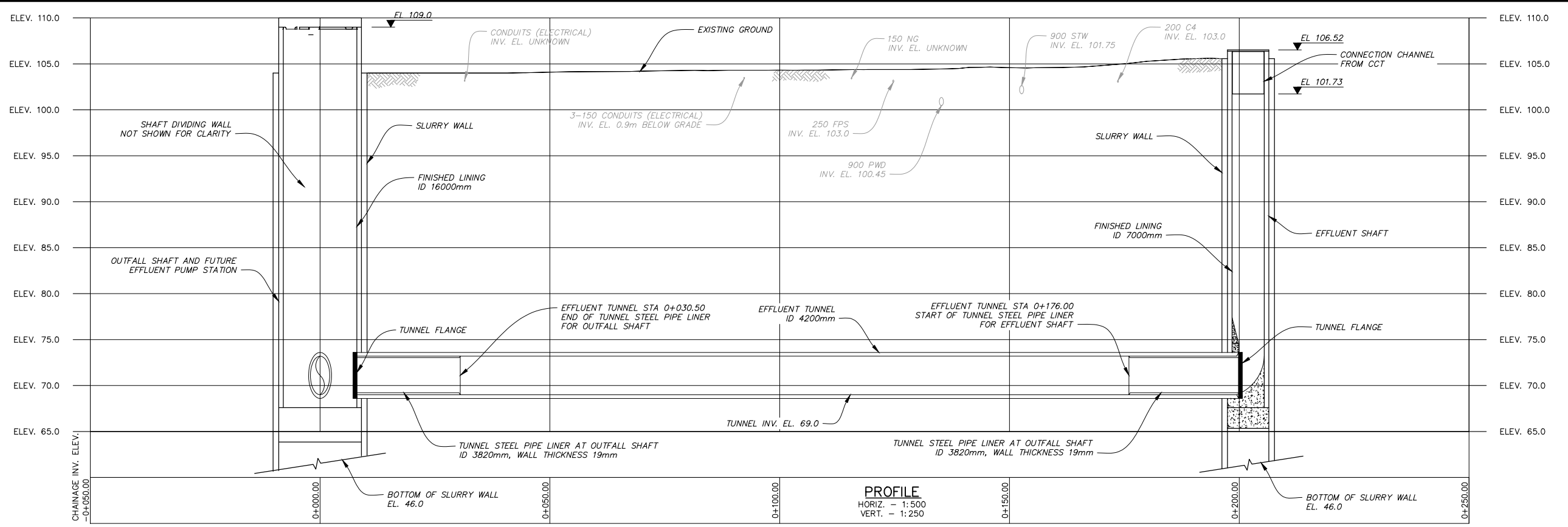


Professional Seal

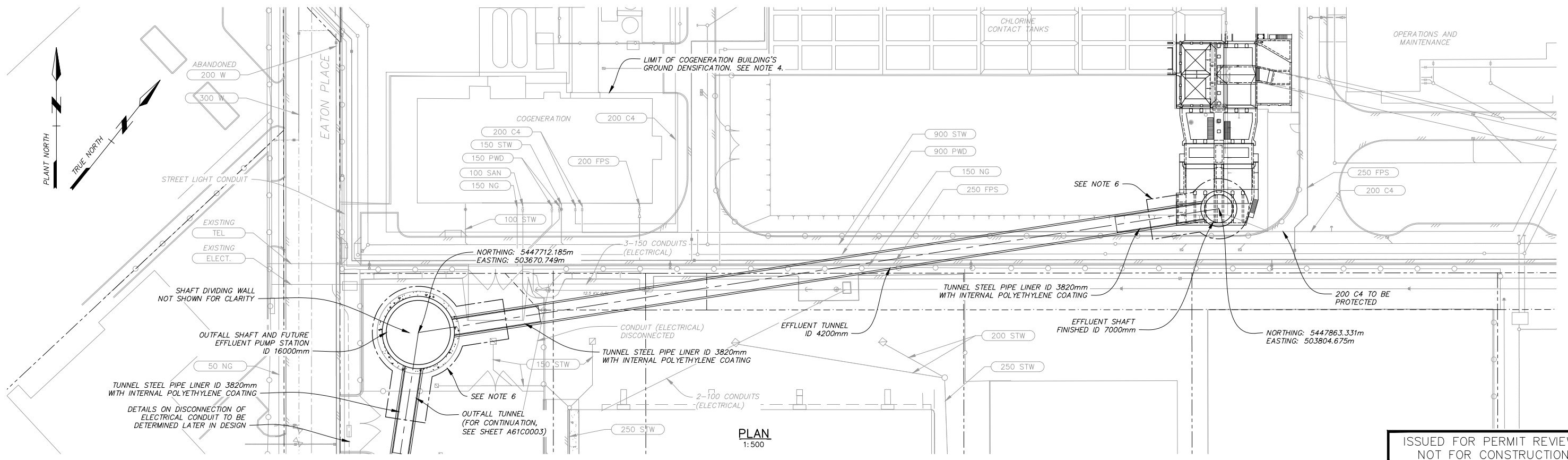
Issue	Date	Desn	Dr'n	Chkd	Appd	Description
P4	NOV. 2017	AK	CEB	GLL	JNC	ISSUED FOR PERMIT REVIEW
P3	AUG. 2017	AK	CEB	GLL	JNC	ISSUED FOR 90% DESIGN REVIEW
P2	MAR. 2017	AK	CEB	GLL	JNC	ISSUED FOR 60% DESIGN REVIEW
P1	AUG. 2016	AK	CEB	GLL	JNC	ISSUED FOR PRELIMINARY DESIGN REVIEW

Design: AK Drawn: CEB Checked: GLL JNC Approved JEN Manager		SCALE: 1:2500 DISTRICT FILE SF-1933 DRAWING NUMBER A61C0001
GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT ANNACIS ISLAND WWTP NEW OUTFALL SYSTEM CONSTRUCTION SERVICES FOR THE OUTFALL A61 - GENERAL SITE WORKS SITE PLAN SHEET KEY MAP 2		SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P4

2017-11-06 16:24 RV G:\cdm\m\p\2017\1933\A61C0001\SP1933.dwg xref files:



**PROFILE**  
 HORIZ. - 1:500  
 VERT. - 1:250



**PLAN**  
 1:500

ISSUED FOR PERMIT REVIEW  
 NOT FOR CONSTRUCTION

- NOTES:**
- COORDINATES ARE UTM NAD83 ZONE 10 - 4.0.0.BC.1.GVRD GROUND UNITS. COMBINED SCALE FACTOR = 0.9996026.
  - ELEVATIONS ARE IN METERS AND REFER TO CVD28GVRD2005 GEODETIC DATUM. 100m HAS BEEN ADDED TO ALL ELEVATIONS AND TIED TO BENCHMARK 87H3501 (ELEV: 3.546'). TBM ELEV: 103.546'.
  - TOPOGRAPHICAL SURVEY PROVIDED BY PROTECH ON JANUARY 2013.
  - COGENERATION BUILDING'S GROUND IMPROVEMENT TO EL. 86.5 PER DRAWINGS A81 S1003 AND A81 S1004, DATED JAN 1996 OF THE AIWTP CONTRACT A11 COGENERATION - STAGE IV.
  - ALL LOCATIONS AND ELEVATIONS OF UTILITIES ARE APPROXIMATE. CONTRACTOR TO LOCATE, PROTECT, AND RELOCATE UTILITIES AS REQUIRED.
  - CONTRACTOR TO PROTECT UTILITIES WITHIN SHAFT AND TUNNEL CONSTRUCTION IMPACT ZONE.
  - FIELD APPLIED POLYETHYLENE COATING ON THE TUNNEL STEEL PIPE LINER AND STEEL SHAFT TO TUNNEL CONNECTIONS AFTER INSTALLATION.



Issue	Date	Des	Dr'n	Chkd	App'd	Description
P4	NOV. 2017	AK	CEB	GLL	JNC	ISSUED FOR PERMIT REVIEW
P3	AUG. 2017	AK	CEB	GLL	JNC	ISSUED FOR 90% DESIGN REVIEW
P2	MAR. 2017	AK	CEB	GLL	JNC	ISSUED FOR 60% DESIGN REVIEW
P1	AUG. 2016	AK	CEB	GLL	JNC	ISSUED FOR PRELIMINARY DESIGN REVIEW

**GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT**

**ANNACIS ISLAND WWTP  
 NEW OUTFALL SYSTEM  
 CONSTRUCTION SERVICES FOR THE OUTFALL**

**A61 - NOS  
 TUNNEL PLAN AND PROFILE 1**

Design: AK  
 Drawn: CEB  
 Checked: GLL  
 JNC Approved  
 JEN Manager

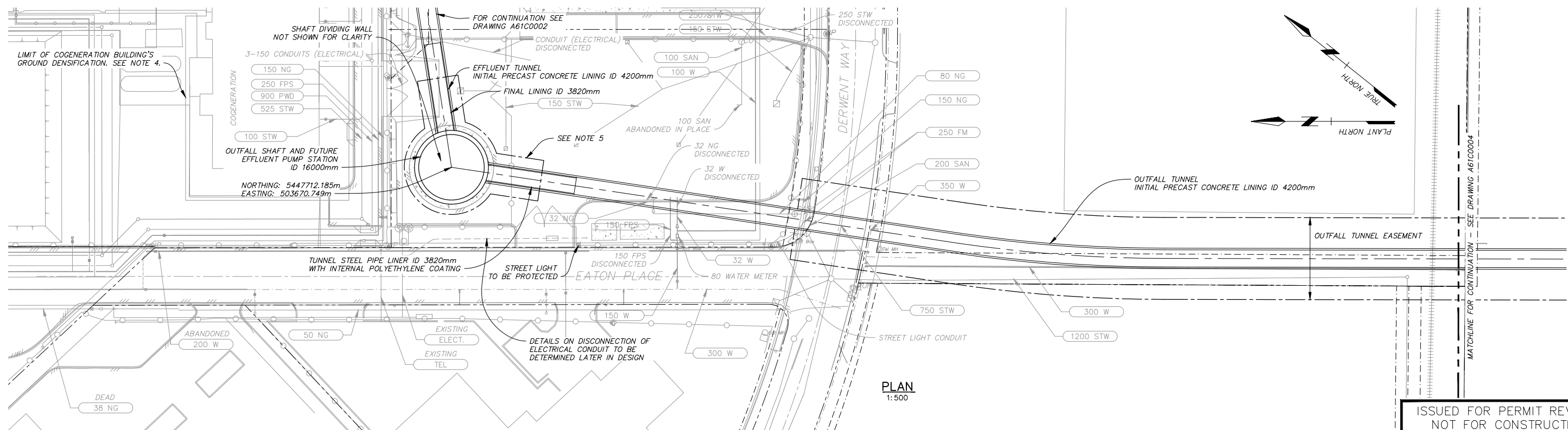
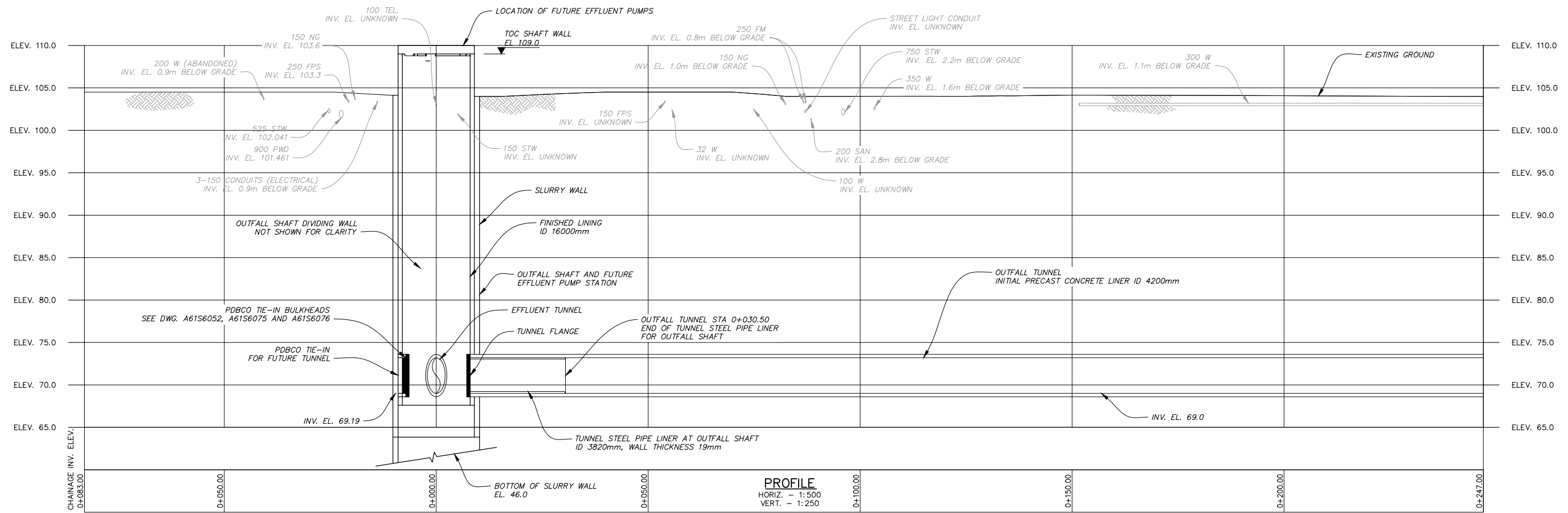
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 DISTRICT FILE SF-1933  
 DRAWING NUMBER A61C0002

SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P4

Professional Seal

Bar is 20mm On Original Drawing. If Not On This Sheet, Adjust Scales Accordingly.

2017-11-16 16:39 RV G:\cdm\m\p\2821585\A61C0002SF1933.dwg



- NOTES:**
- COORDINATES ARE UTM NAD83 ZONE 10 - 4.0.0.BC.1.GVRD GROUND UNITS. COMBINED SCALE FACTOR = 0.9996026.
  - ELEVATIONS ARE IN METERS AND REFER TO CVD28GVRD2005 GEODETIC DATUM. 100m HAS BEEN ADDED TO ALL ELEVATIONS AND TIED TO BENCHMARK 87H3501 (ELEV: 3.546'). TBM ELEV: 103.546'. TOPOGRAPHICAL SURVEY PROVIDED BY PROTECH ON JANUARY 2013.
  - ALL LOCATIONS AND ELEVATIONS OF UTILITIES ARE APPROXIMATE. CONTRACTOR TO LOCATE, PROTECT, AND RELOCATE UTILITIES AS REQUIRED.
  - CONTRACTOR TO PROTECT UTILITIES WITHIN SHAFT AND TUNNEL CONSTRUCTION IMPACT ZONE.
  - FIELD APPLIED POLYETHYLENE COATING ON THE TUNNEL STEEL PIPE LINER AND STEEL SHAFT TO TUNNEL CONNECTIONS AFTER INSTALLATION.



Issue	Date	Des	Dr'n	Chkd	App'd	Description
P4	NOV. 2017	AK	CEB	GLL	JNC	ISSUED FOR PERMIT REVIEW
P3	AUG. 2017	AK	CEB	GLL	JNC	ISSUED FOR 90% DESIGN REVIEW
P2	MAR. 2017	AK	CEB	GLL	JNC	ISSUED FOR 60% DESIGN REVIEW
P1	AUG. 2016	AK	CEB	GLL	JNC	ISSUED FOR PRELIMINARY DESIGN REVIEW

GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT

ANNACIS ISLAND WWTP  
NEW OUTFALL SYSTEM  
CONSTRUCTION SERVICES FOR THE OUTFALL

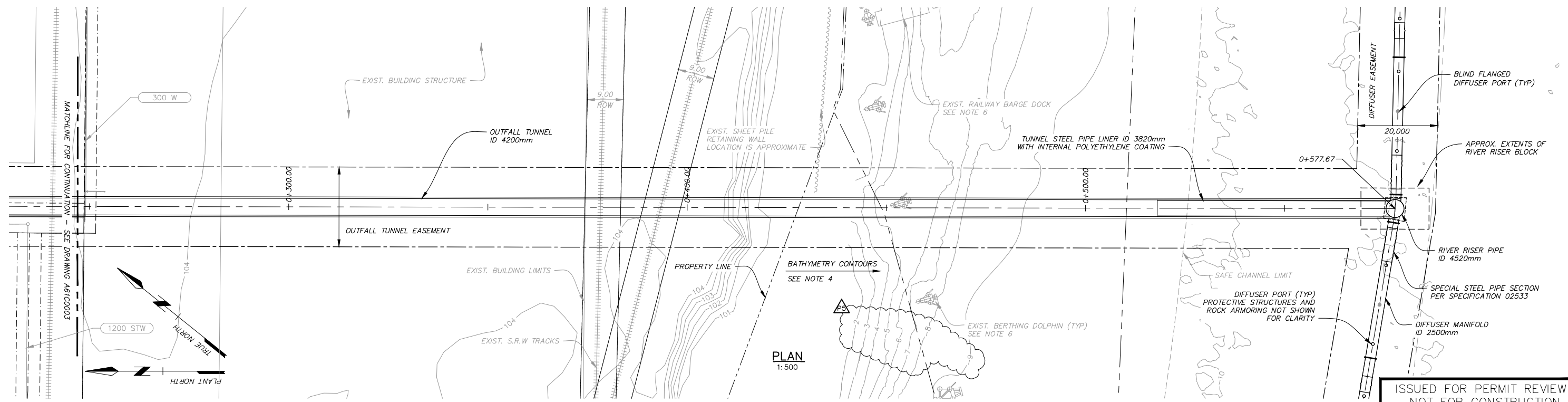
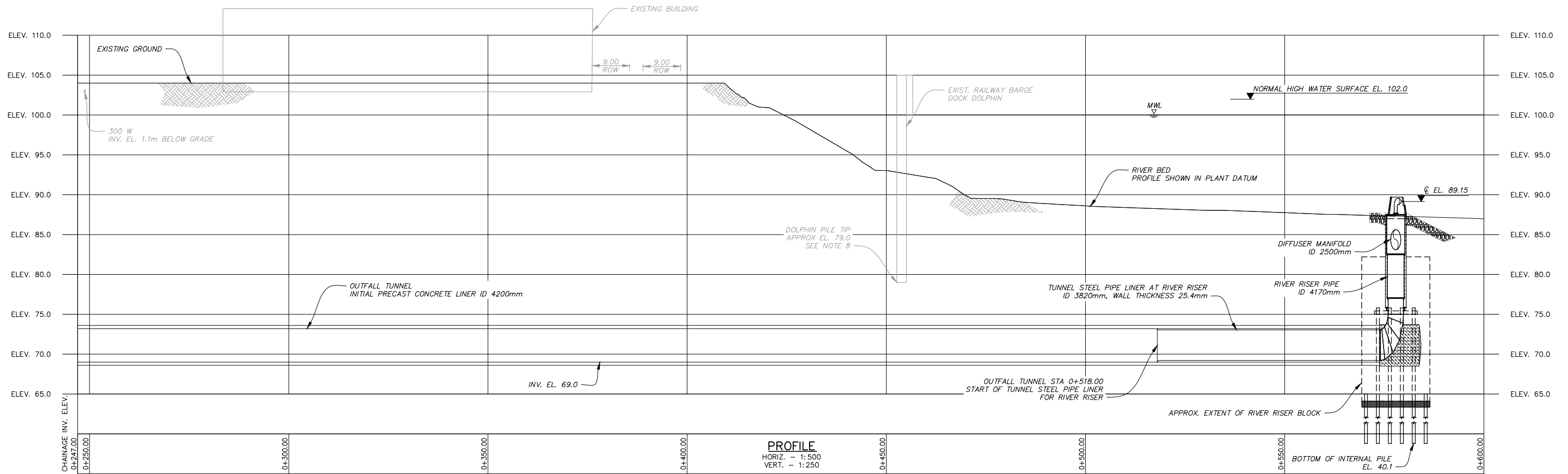
A61 - NOS  
TUNNEL PLAN AND PROFILE 2

DESIGN: AK  
DRAWN: CEB  
CHECKED: GLL  
JNC Approved  
JEN Manager

SCALE: AS NOTED  
DISTRICT FILE SF-1933  
DRAWING NUMBER A61C0003

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

2017-11-06 16:45 RV G:\cdm\m\p\22821585\A61C0003SF1933.dwg



- NOTES:**
- COORDINATES ARE UTM NAD83 ZONE 10 - 4.0.0.BC.1.GVRD GROUND UNITS. COMBINED SCALE FACTOR = 0.9996026.
  - ELEVATIONS ARE IN METERS AND REFER TO CVD28GVRD2005 GEODETIC DATUM.
  - 100m HAS BEEN ADDED TO ALL ELEVATIONS AND TIED TO BENCHMARK 87H3501 (ELEV: 3.546'). TBM ELEV: 103.546'.
  - TOPOGRAPHICAL SURVEY PROVIDED BY PROTECH ON JANUARY 2013.
  - RIVER BOTTOM (BATHYMETRY ELEVATION IN TIDE & CHART DATUM (EL 0.00 GEODETIC=EL+1.59 TIDE & CHART)).
  - RIVER BATHYMETRY IS VARIABLE. CCG BATHYMETRY SURVEY DATA FROM JANUARY 2016.
  - NEW STRUCTURES AND DIFFUSER MANIFOLD PIPELINE ARE IN AIWWTP DATUM PER NOTE 2 ABOVE.
  - ANNACIS ISLAND RAILCAR BARGE TERMINAL LOCATION PER SOUTHERN RAILWAY BRITISH COLUMBIA DRAWING FILE 25141102, MAY 2009.
  - LOCATION IS APPROXIMATE.
  - ALL LOCATIONS AND ELEVATIONS OF UTILITIES ARE APPROXIMATE. CONTRACTOR TO LOCATE, PROTECT, AND RELOCATE UTILITIES AS REQUIRED.
  - SOUTHERN RAILWAY OF BC, ANNACIS ISLAND RAILCAR BARGE TERMINAL
  - ISSUED FOR CONSTRUCTION DRAWING NO. 25141-102. REV. C, AUG 19, 2009.



Issue	Date	Desn	Dr'n	Chkd	App'd	Description
P4	NOV. 2017	AK	CEB	GLL	JNC	ISSUED FOR PERMIT REVIEW
P3	AUG. 2017	AK	CEB	GLL	JNC	ISSUED FOR 90% DESIGN REVIEW
P2	MAR. 2017	AK	CEB	GLL	JNC	ISSUED FOR 60% DESIGN REVIEW
P1	AUG. 2016	AK	CEB	GLL	JNC	ISSUED FOR PRELIMINARY DESIGN REVIEW

GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT

ANNACIS ISLAND WWTP  
NEW OUTFALL SYSTEM  
CONSTRUCTION SERVICES FOR THE OUTFALL

A61 - NOS  
TUNNEL PLAN AND PROFILE 3

DESIGN: AK  
DRAWN: CEB  
CHECKED: GLL  
APPROVED: JNC  
JEN Manager

SCALE: AS NOTED  
DISTRICT FILE SF-1933  
DRAWING NUMBER A61C0004

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

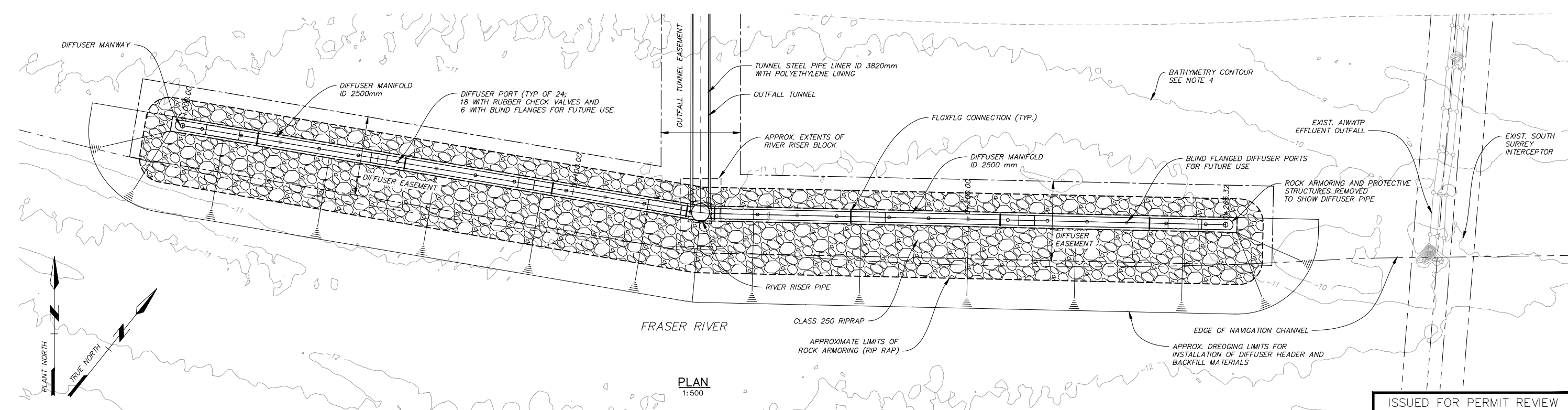
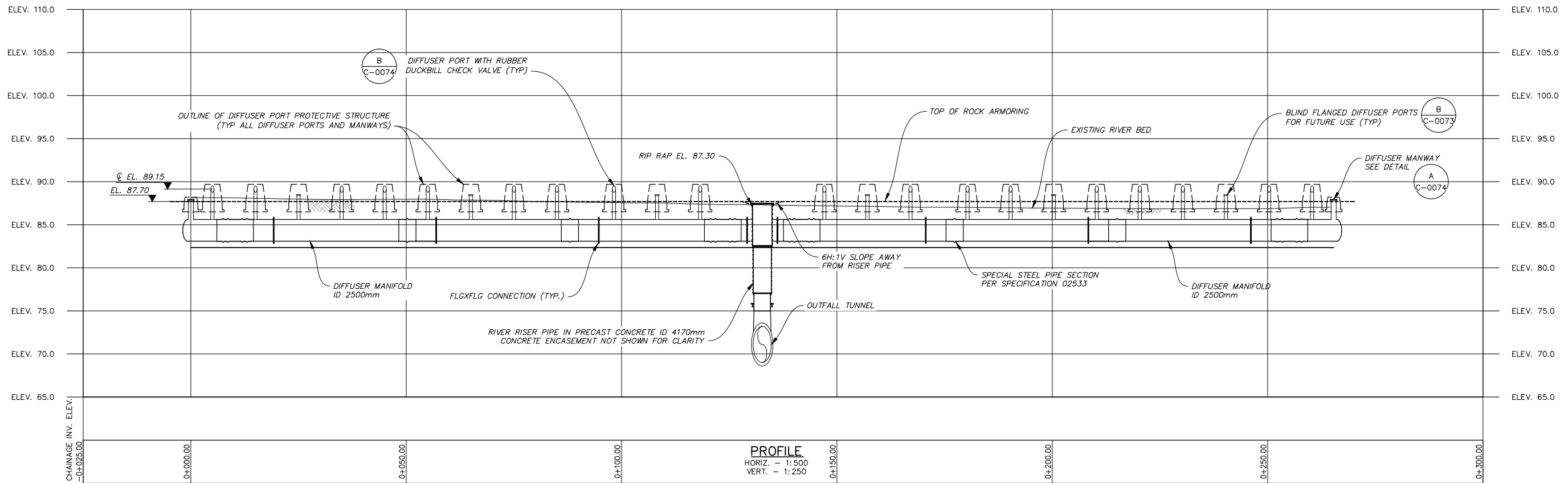
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Professional Seal

0 20 Bar is 20mm On Original Drawing. If Not On This Sheet, Adjust Scales Accordingly.

2017-11-06 16:59 RV G:\cdm\m\p\22821585\A61C0004\A61C0004.dwg





ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

- NOTES:**
- COORDINATES ARE UTM NAD83 ZONE 10 - 4.0.0.BC.1.GVRD GROUND UNITS. COMBINED SCALE FACTOR = 0.9996026.
  - ELEVATIONS ARE IN METERS AND REFER TO CVD28GVRD2005 GEODETIC DATUM. 100m HAS BEEN ADDED TO ALL ELEVATIONS AND TIED TO BENCHMARK 87H3501 (ELEV: 3.546'). TBM ELEV: 103.546'.
  - TOPOGRAPHICAL SURVEY PROVIDED BY PROTECH ON JANUARY 2013.
  - RIVER BOTTOM (BATHYMETRY ELEVATION IN TIDE & CHART DATUM (EL 0.00 GEODETIC=EL+1.59 TIDE & CHART). RIVER BATHYMETRY IS VARIABLE. CCG BATHYMETRY SURVEY DATA FROM JANUARY 2016.
  - NEW STRUCTURES AND DIFFUSER MANIFOLD PIPELINE ARE IN AIWWTP DATUM PER NOTE 2 ABOVE.
  - ANNACIS ISLAND RAILCAR BARGE TERMINAL LOCATION PER SOUTHERN RAILWAY BRITISH COLUMBIA DRAWING FILE 25141102, MAY 2009. LOCATION IS APPROXIMATE.



Professional Seal

Issue	Date	Desn	Dr'n	Chkd	App'd	Description
P4	NOV. 2017	AK	CEB	GLL	JNC	ISSUED FOR PERMIT REVIEW
P3	AUG. 2017	AK	CEB	GLL	JNC	ISSUED FOR 90% DESIGN REVIEW
P2	MAR. 2017	AK	CEB	GLL	JNC	ISSUED FOR 60% DESIGN REVIEW
P1	AUG. 2016	AK	CEB	GLL	JNC	ISSUED FOR PRELIMINARY DESIGN REVIEW

GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT

ANNACIS ISLAND WWTP  
NEW OUTFALL SYSTEM  
CONSTRUCTION SERVICES FOR THE OUTFALL

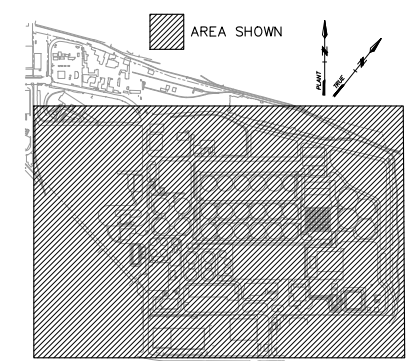
A61 - NOS  
TUNNEL PLAN AND PROFILE 4

DESIGN: AK  
DRAWN: CEB  
CHECKED: GLL  
APPROVED: JNC  
MANAGER: JEN

SCALE: AS NOTED  
DISTRICT FILE SF-1933  
DRAWING NUMBER A61C0005

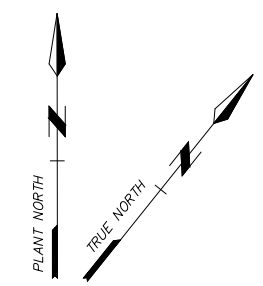
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Supersedes prints of this drawing number with letters previous to P4

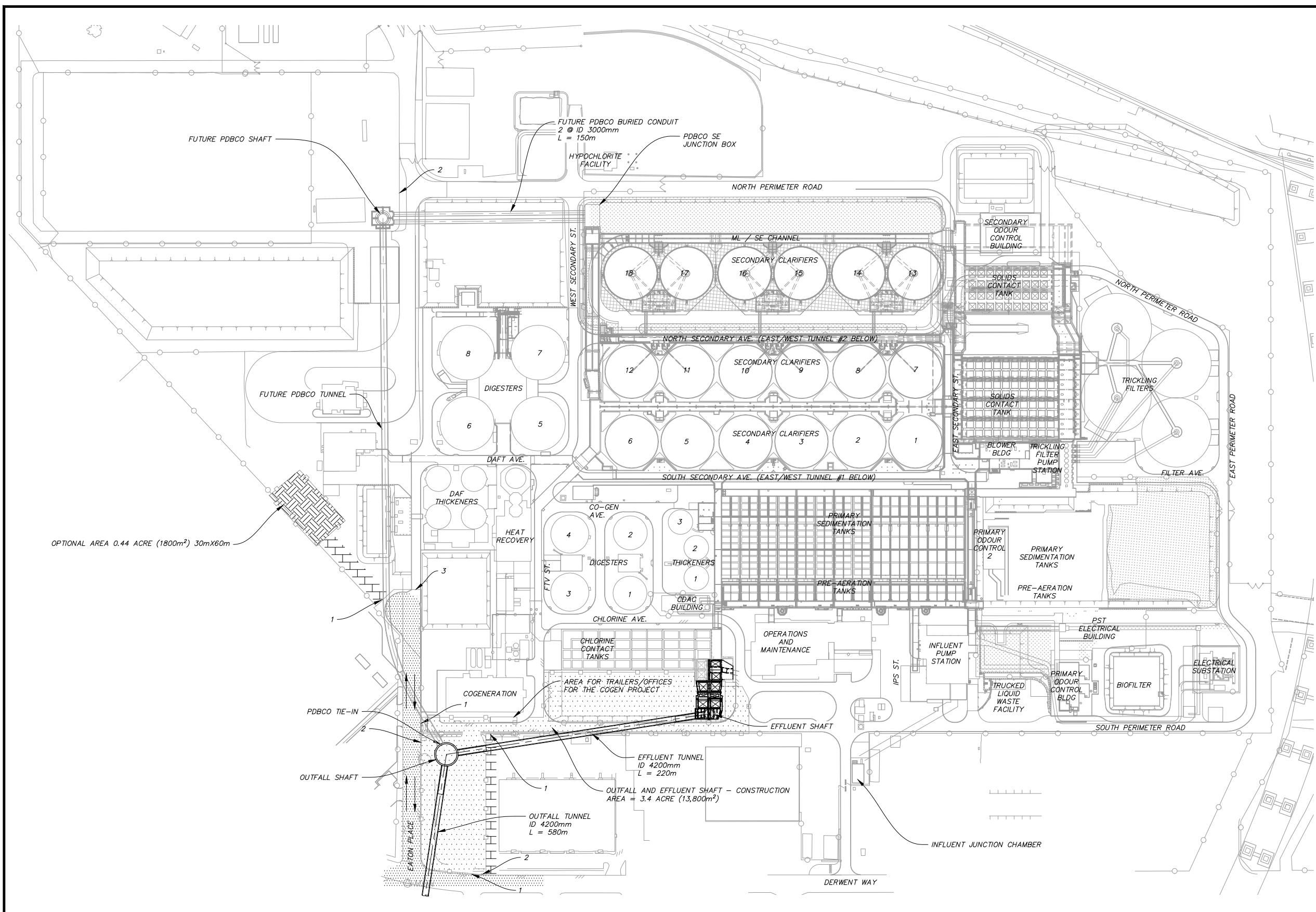


**NOTES:**

1. REFER TO DRAWING A10 \_\_\_\_\_ FOR GENERAL NOTES.
2. REFER TO DRAWING A10 \_\_\_\_\_ FOR PROJECT SURVEY CONTROLS.
3. REFER TO DRAWING A10 \_\_\_\_\_ FOR EXISTING SITE CONTOURS.



ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION



**LEGEND**

[Symbol]	CONSTRUCTION STAGING AREAS	1	SITE ACCESS
[Symbol]	TUNNEL CONSTRUCTION STORAGE AREAS (RINGS, STEEL PIPES, ETC). OPTIONAL AREA	2	NEW SECURITY KIOSK
[Symbol]	ACCESS ROAD - TRUCK ROUTE	3	ENTRANCE SECURITY GATE
[Symbol]	NEW ROAD ACCESS - OPTIONAL AREA - EFFLUENT SHAFT	[Symbol]	EXISTING PLANT FENCE
[Symbol]		[Symbol]	CONSTRUCTION FENCE
[Symbol]		[Symbol]	TRAFFIC DIRECTION

- 1 SITE ACCESS
- 2 NEW SECURITY KIOSK
- 3 ENTRANCE SECURITY GATE
- EXISTING PLANT FENCE
- CONSTRUCTION FENCE
- TRAFFIC DIRECTION

**CDM Smith**

1001-4710 Kingsway  
Burnaby, BC V5H 4M2  
Canada  
Phone: 604-431-0242

Professional Seal

Issue	Date	Desn	Dr'n	Chkd	Appd	Description
P3	NOV. 2017	JFA	CEB	GLL	JNC	ISSUED FOR PERMIT REVIEW
P2	AUG. 2017	JFA	CEB	GLL	JNC	ISSUED FOR 90% DESIGN REVIEW
P1	MAR. 2017	JFA	CEB	GLL	JNC	ISSUED FOR 60% DESIGN REVIEW

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GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT

ANNACIS ISLAND WWTP  
NEW OUTFALL SYSTEM  
CONSTRUCTION SERVICES FOR THE OUTFALL

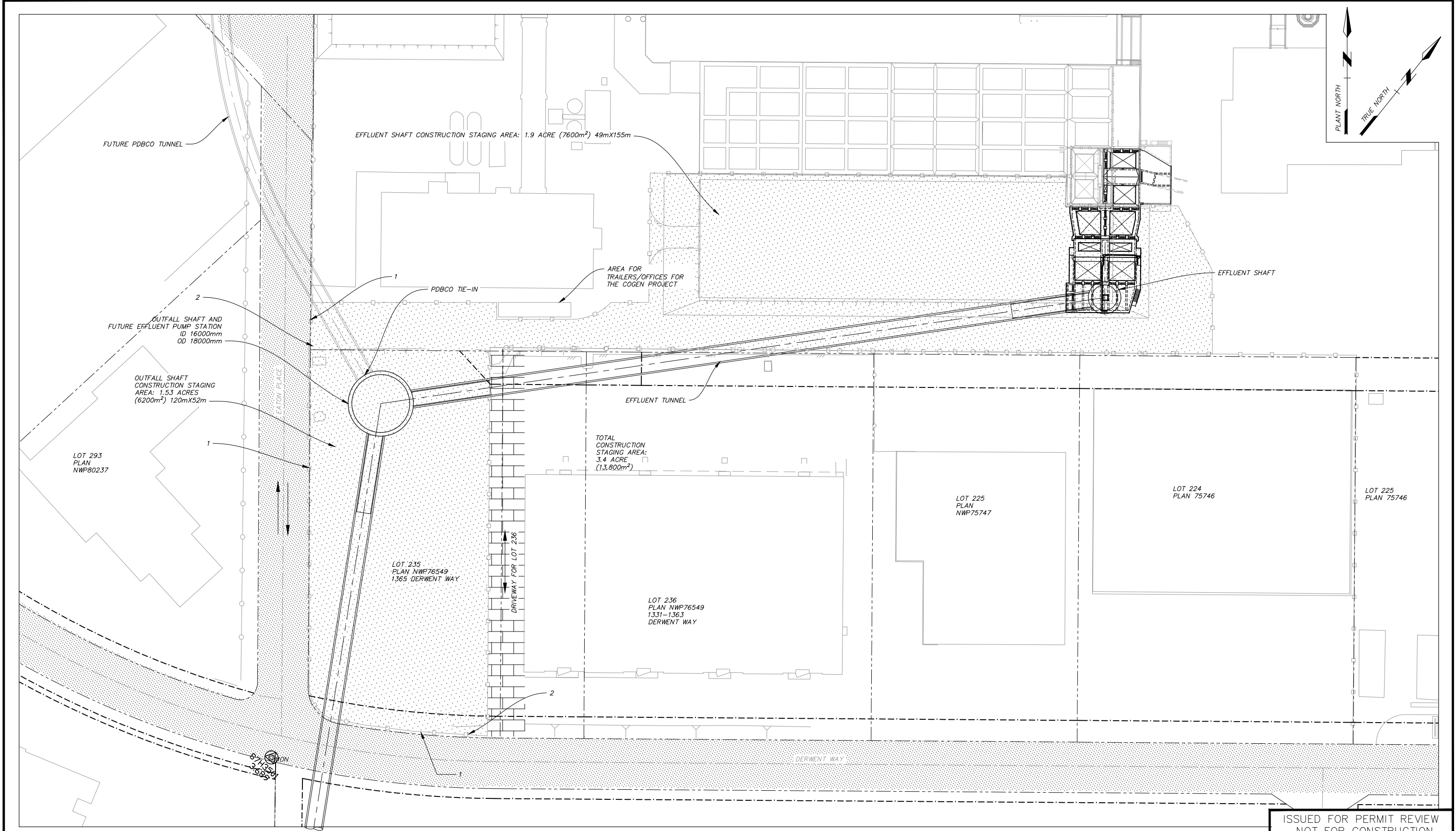
CIVIL WORKS - SITE PLAN  
CONSTRUCTION ACCESS AND FENCING

DESIGN: JFA  
DRAWN: CEB  
CHECKED: GLL  
JNC Approved  
JEN Manager

SCALE: NTS  
DISTRICT FILE SF-1933  
DRAWING NUMBER X-A10C007

SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P3

2017-10-17 20:17 kaikumara 02821585 X-A10C007 - PERMIT.dwg



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NOT FOR CONSTRUCTION

LEGEND	
	CONSTRUCTION STAGING AREAS
	ACCESS ROAD - TRUCK ROUTE
	NEW ROAD ACCESS
	TRAFFIC DIRECTION
1	SITE ACCESS
2	NEW SECURITY KIOSK
	EXISTING PLANT FENCE
	CONSTRUCTION FENCE

**CDM Smith**  
 1001-4710 Kingsway  
 Burnaby, BC V5H 4M2  
 Canada  
 Phone: 604-431-0242

Professional Seal

Issue	Date	Desn	Dr'n	Chkd	Appd	Description
P3	NOV. 2017	JFA	CEB	GLL	JNC	ISSUED FOR PERMIT REVIEW
P2	AUG. 2017	JFA	CEB	GLL	JNC	ISSUED FOR 90% DESIGN REVIEW
P1	MAR. 2017	JFA	CEB	GLL	JNC	ISSUED FOR 60% DESIGN REVIEW

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GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT

Design: JFA  
 Drawn: CEB  
 Checked: GLL

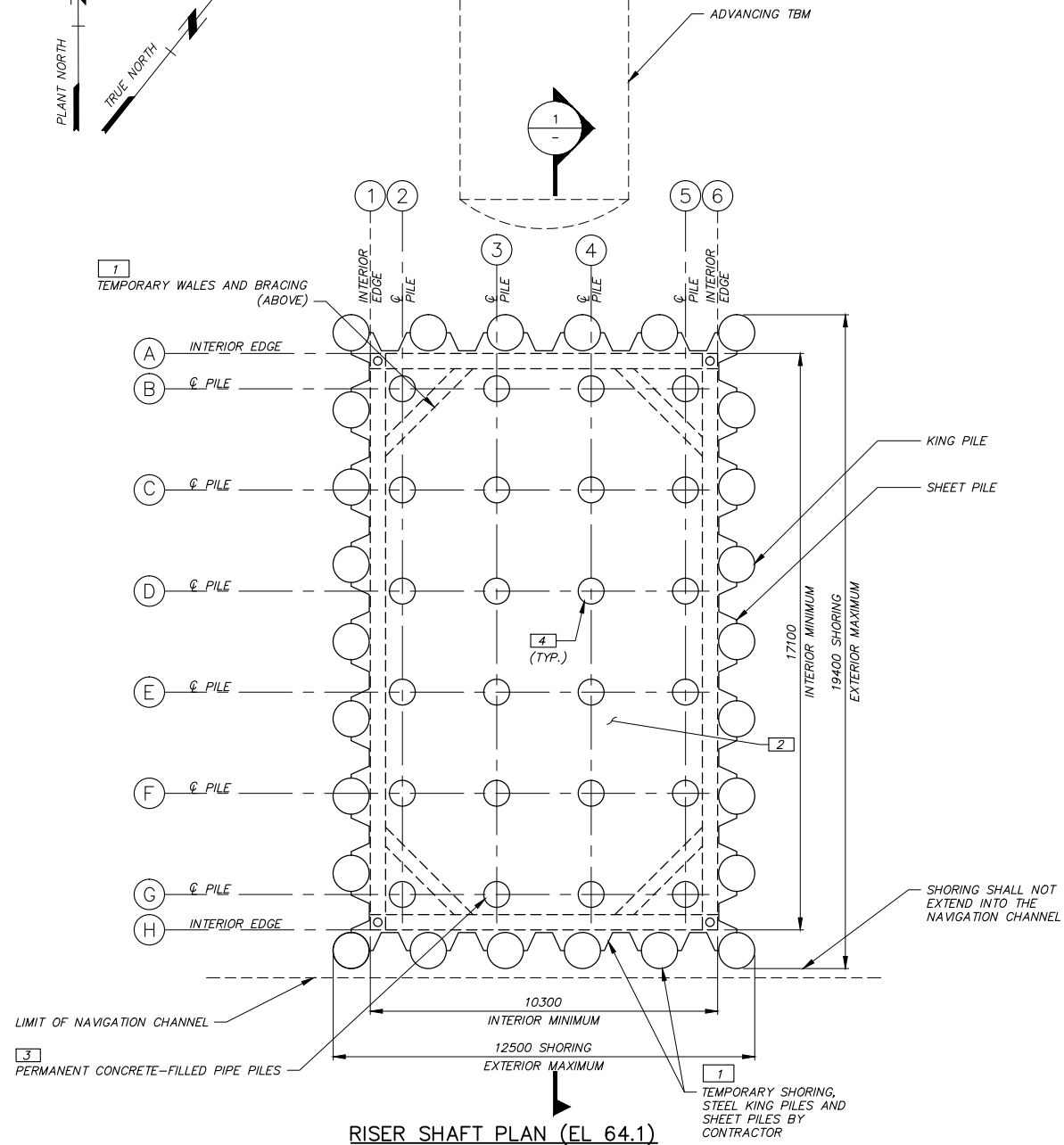
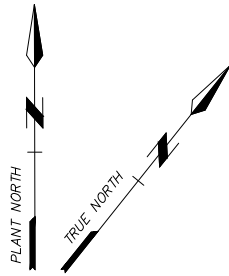
JNC Approved  
 JEN Manager

ANNACIS ISLAND WWT  
 NEW OUTFALL SYSTEM  
 CONSTRUCTION SERVICES FOR THE OUTFALL

CIVIL WORKS - GENERAL ARRANGEMENT  
 CONSTRUCTION STAGING AREA - 1

SCALE: NTS  
 DISTRICT FILE SF-1933  
 DRAWING NUMBER X-A10C008

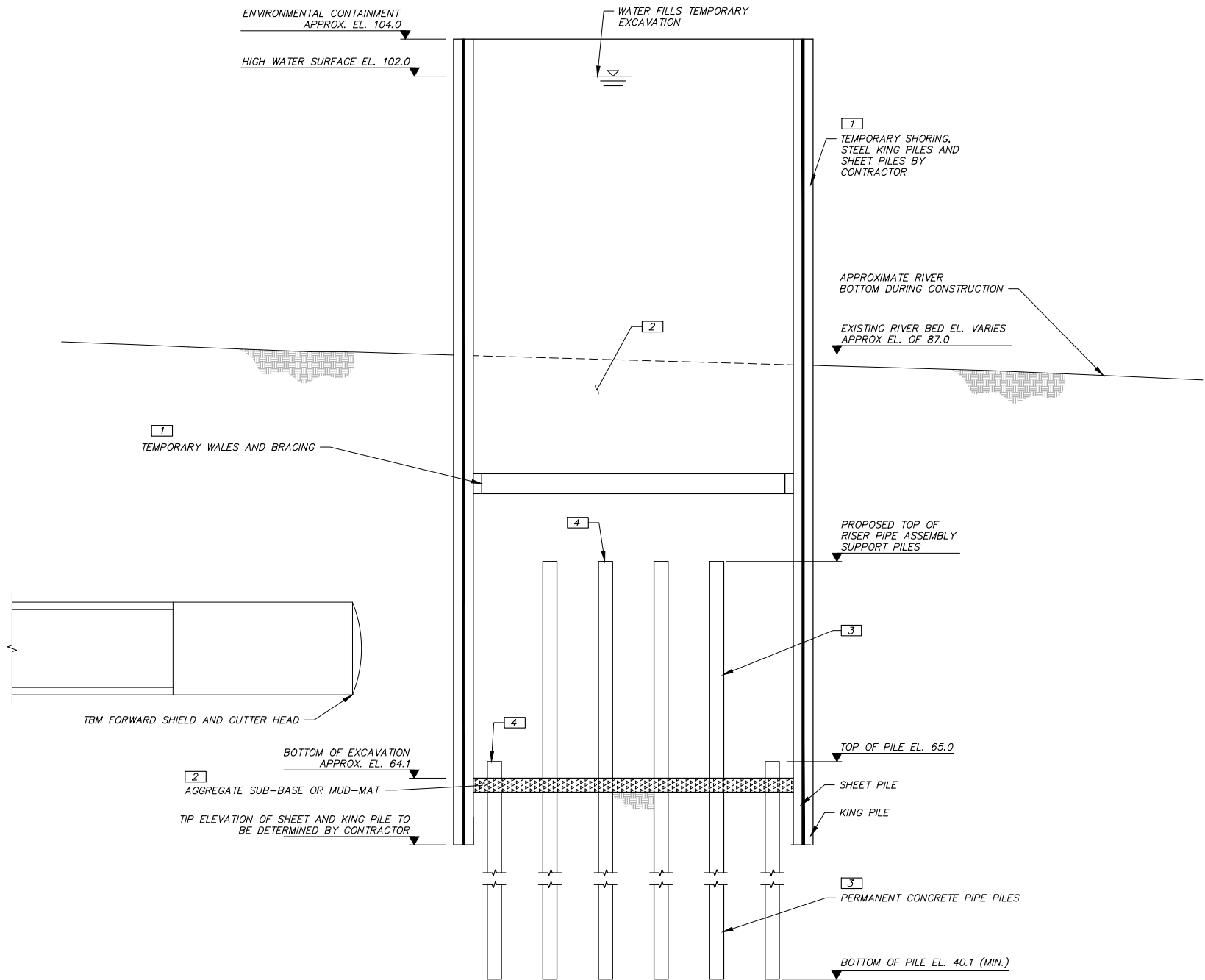
SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P3



**RISER SHAFT PLAN (EL 64.1)**  
1:100

**PROPOSED STEPS 1 THRU 4**

- 1 INSTALL TEMPORARY SHORING AS REQUIRED TO MEET MINIMUM EXCAVATION LIMITS. TEMPORARY SHORING TO BE DESIGNED AND CONSTRUCTED BY THE CONTRACTOR.
- 2 EXCAVATE SOIL TO THE LIMITS SHOWN. CONTRACTOR TO PROVIDE A LAYER OF AGGREGATE OR A CONCRETE MUD-MAT TO PREVENT INTERMIXING OF LOOSE SOILS WITH STRUCTURAL TREMIE CONCRETE.
- 3 DRIVE PILES. THE REQUIRED PILE CUT-OFF ELEVATION IS 65.0. TOP OF PILES ELEVATIONS MAY BE INCREASED AT CONTRACTORS OPTION TO TEMPORARILY SUPPORT THE INSTALLATION OF THE RISER PIPE. PILE 1C, 1D, 1E, 1F, 5C, 5D, 5E & 5F ARE SHOWN EXTENDED TO SUPPORT THE RISER PIPE ASSEMBLY. PILES WITHIN THE PATH OF THE TBM SHALL TERMINATE AT ELEVATION 65.0.
- 4 FILL PIPE PILES WITH CONCRETE AS REQUIRED PER DESIGN.



**SECTION 1-1**  
1:150

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NOT FOR CONSTRUCTION



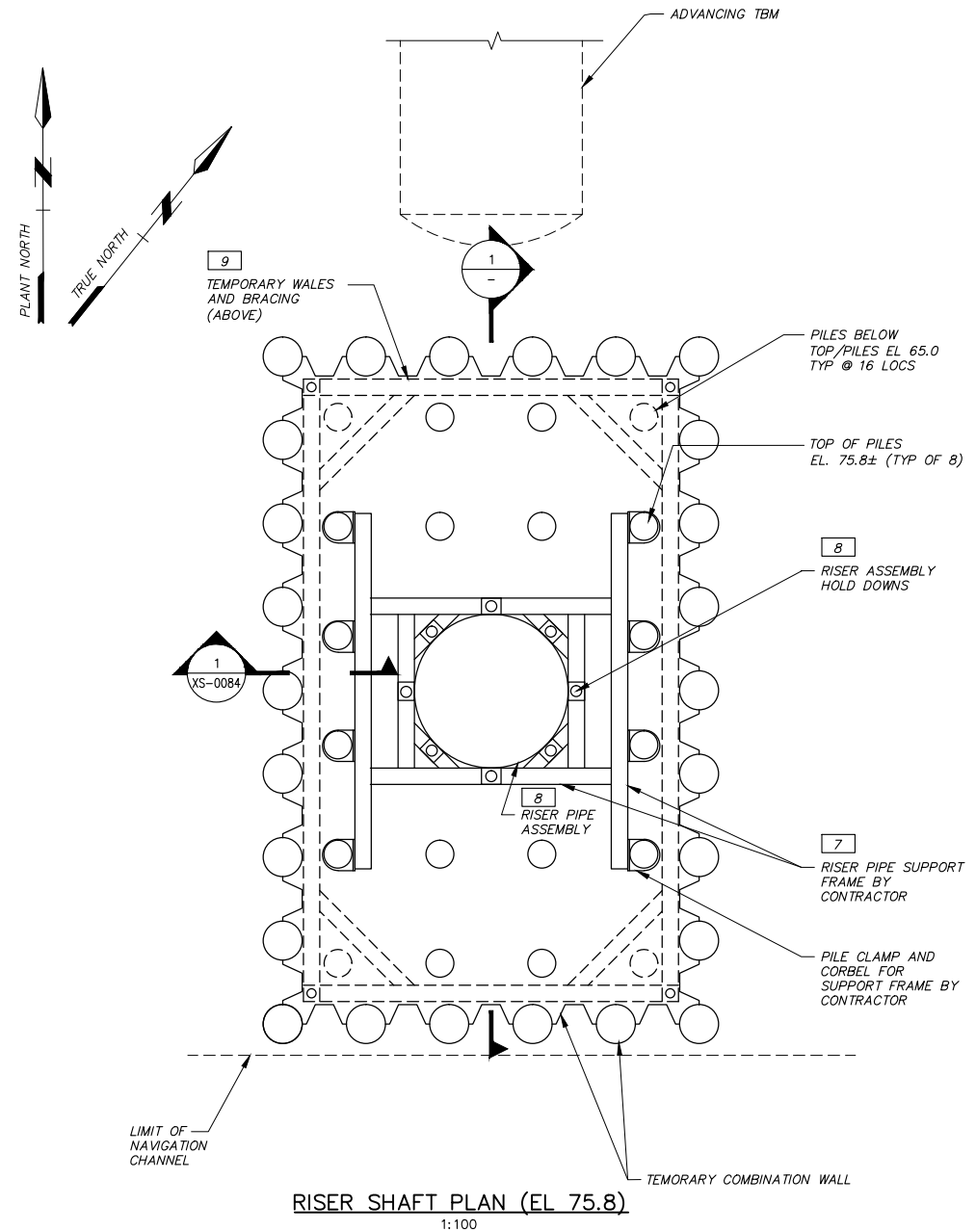
Professional Seal

Issue	Date	Desn	Dr'n	Chkd	App'd	Description
P3	NOV. 2017	CSC	CEB	PFB	JNC	ISSUED FOR PERMIT REVIEW
P2	SEP. 2017	CSC	CEB	PFB	JNC	ISSUED FOR 90% DESIGN REVIEW
P1	SEP. 2017	CSC	CEB	PFB	JNC	ISSUED FOR INTERIM LCS DESIGN REVIEW

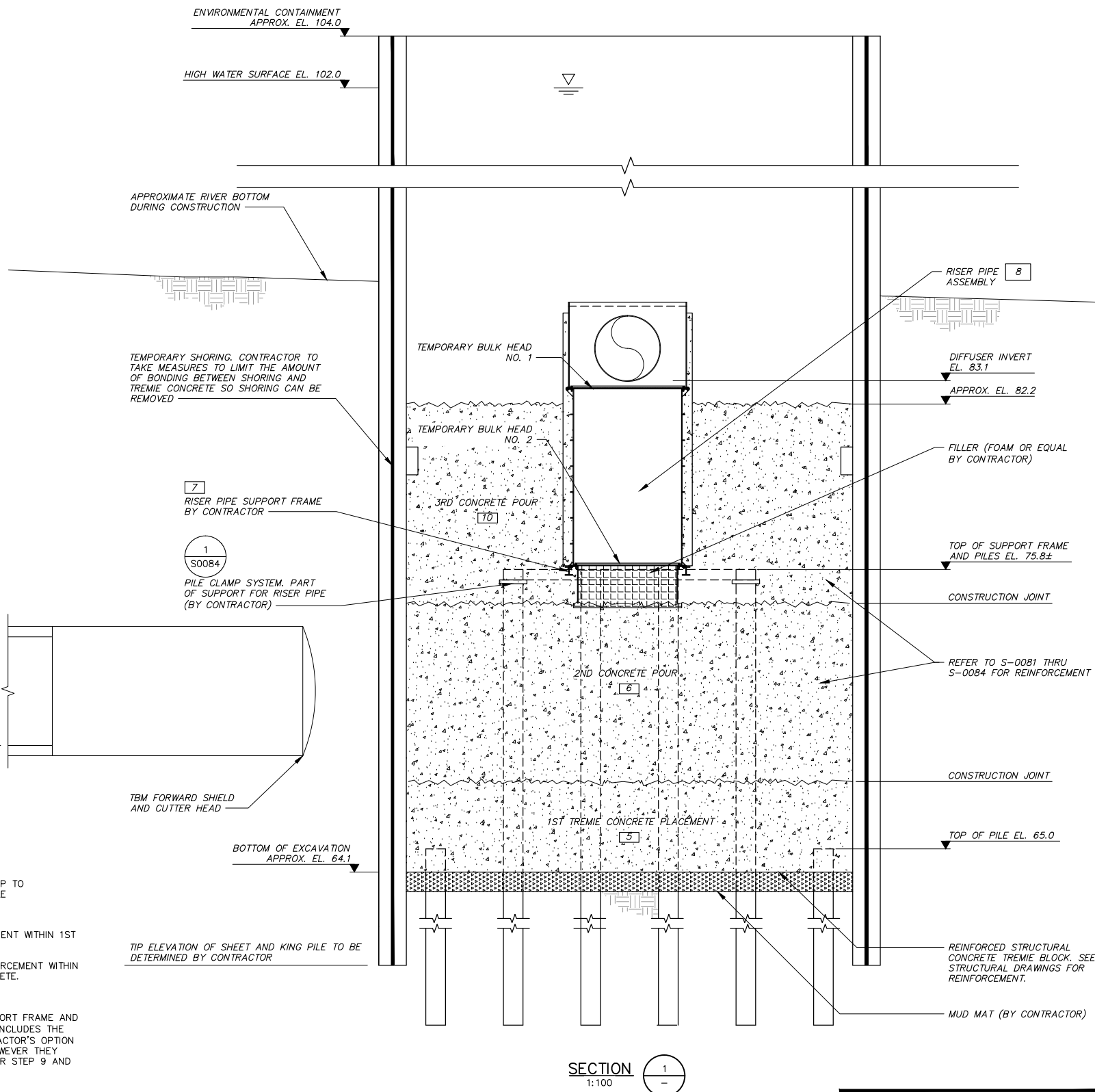
Design: CSC Drawn: CEB Checked: PFB		<b>GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT</b> ANNACIS ISLAND WWTP NEW OUTFALL SYSTEM CONSTRUCTION SERVICES FOR THE OUTFALL	SCALE: AS NOTED
JNC Approved JEN Manager			DISTRICT FILE SF-1933
<b>RISER SHAFT          CONSTRUCTION SEQUENCE 1</b>			DRAWING NUMBER X-A61S0081

SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P.3

2017-10-17 14:58 Bldgbooker G:\chm\m\valderbooker\2821985\X-A61S0081 - PERMIT.dwg



RISER SHAFT PLAN (EL 75.8)  
1:100



SECTION 1  
1:100

**GENERAL NOTES:**

1. CONTRACTOR TO DESIGN, FABRICATE AND INSTALL TEMPORARY FRAMING AND OTHER COMPONENTS FOR SUPPORTING THE RISER PIPE ASSEMBLY DURING THE PLACEMENT OF THE TREMIE CONCRETE. THIS SUPPORT FRAMING WILL BE ABANDONED IN-PLACE AND WILL BE ENCAPSULATED IN TREMIE CONCRETE.
2. THE TEMPORARY FRAMING MAY BE SUPPORTED BY ANY OTHER STRUCTURAL ELEMENT THAT THE CONTRACTOR DETERMINES IS STRUCTURALLY SUFFICIENT TO SUPPORT THE TEMPORARY LOADS OF THE RISER PIPE ASSEMBLY. THE RISER PIPE ASSEMBLY INCLUDES THE PRECAST CONCRETE RISER PIPE/TEE AND FILLER THIS INCLUDES BUT IS NOT LIMITED TO THE STEEL PIPE PILES, TOP OF CONCRETE PLACEMENTS, AND TEMPORARY SHORING.
3. THE CONTRACTOR HAS THE OPTION TO EXTEND ANY PIPE PILE NOT LOCATED WITHIN THE PATH OF THE TBM TO A HIGHER ELEVATION TO ACT AS A GUIDE POST OF LOWERING THE TEMPORARY SUPPORT FRAMING AND RISER PIPE ASSEMBLY INTO POSITION. ANY PILE EXTENDING ABOVE THE FINAL TOP SURFACE (APPROXIMATELY ELEVATION 82.2) OF THE STRUCTURAL TREMIE CONCRETE SHALL BE CUT BACK TO AT LEAST 1 METER BELOW THE TOP SURFACE AND FULLY FILLED WITH CONCRETE.
4. THE DETAILS AND SEQUENCES OF THE FOLLOWING DETAILS SHALL BE COORDINATED BY THE CONTRACTOR WITH THE METHOD CHOSEN TO TEMPORARILY SUPPORT THE RISER PIPE ASSEMBLY:
  - A. LOCATIONS OF CONSTRUCTION JOINTS IN THE STRUCTURAL TREMIE CONCRETE.
  - B. PLACEMENT OF THE CONCRETE REINFORCING STEEL.
  - C. PLACEMENT OF THE CONCRETE ENCASED RISER PIPE ASSEMBLY.
  - D. PLACEMENT OF THE CONCRETE AND THE LOCATIONS OF THE TREMIE PIPES.
  - E. REMOVAL OF THE TEMPORARY SHORING.

**PROPOSED STEPS 5-9**

- PROPOSED SEQUENCED DRAWINGS ASSUME 8 PILES ARE EXTENDED UP TO ELEVATION 75.8 AND A SUPPORT FRAME IS SUPPORTED OFF THE PILE SYSTEM. THE PROPOSED SEQUENCE IS AS FOLLOWS:
5. INSPECT MUD-MATT SURFACE, PLACE CONCRETE REINFORCEMENT WITHIN 1ST CONCRETE PLACEMENT ZONE AND PLACE TREMIE CONCRETE.
  6. INSPECT PREVIOUS POUR SURFACE, PLACE CONCRETE REINFORCEMENT WITHIN 2ND CONCRETE PLACEMENT ZONE AND PLACE TREMIE CONCRETE.
  7. INSTALL SUPPORT FRAME FOR RISER PIPE ASSEMBLY
  8. SET THE RISER PIPE ASSEMBLY ONTO THE TEMPORARY SUPPORT FRAME AND INSTALL/TIGHTEN HOLD-DOWNS. THE RISER PIPE ASSEMBLY INCLUDES THE PRECAST CONCRETE RISER PIPE/TEE AND FILLER. AT CONTRACTOR'S OPTION THEY MAY FLOOD THE SPACE BETWEEN THE BULKHEADS, HOWEVER THEY MUST EVACUATE THE WATER BETWEEN THE BULKHEADS AFTER STEP 9 AND BEFORE STEP 11
  9. REMOVE TEMPORARY WALES AND BRACING.
  10. INSPECT PREVIOUS POUR SURFACE, PLACE CONCRETE REINFORCEMENT WITHIN 3RD CONCRETE PLACEMENT ZONE AND PLACE TREMIE CONCRETE.

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

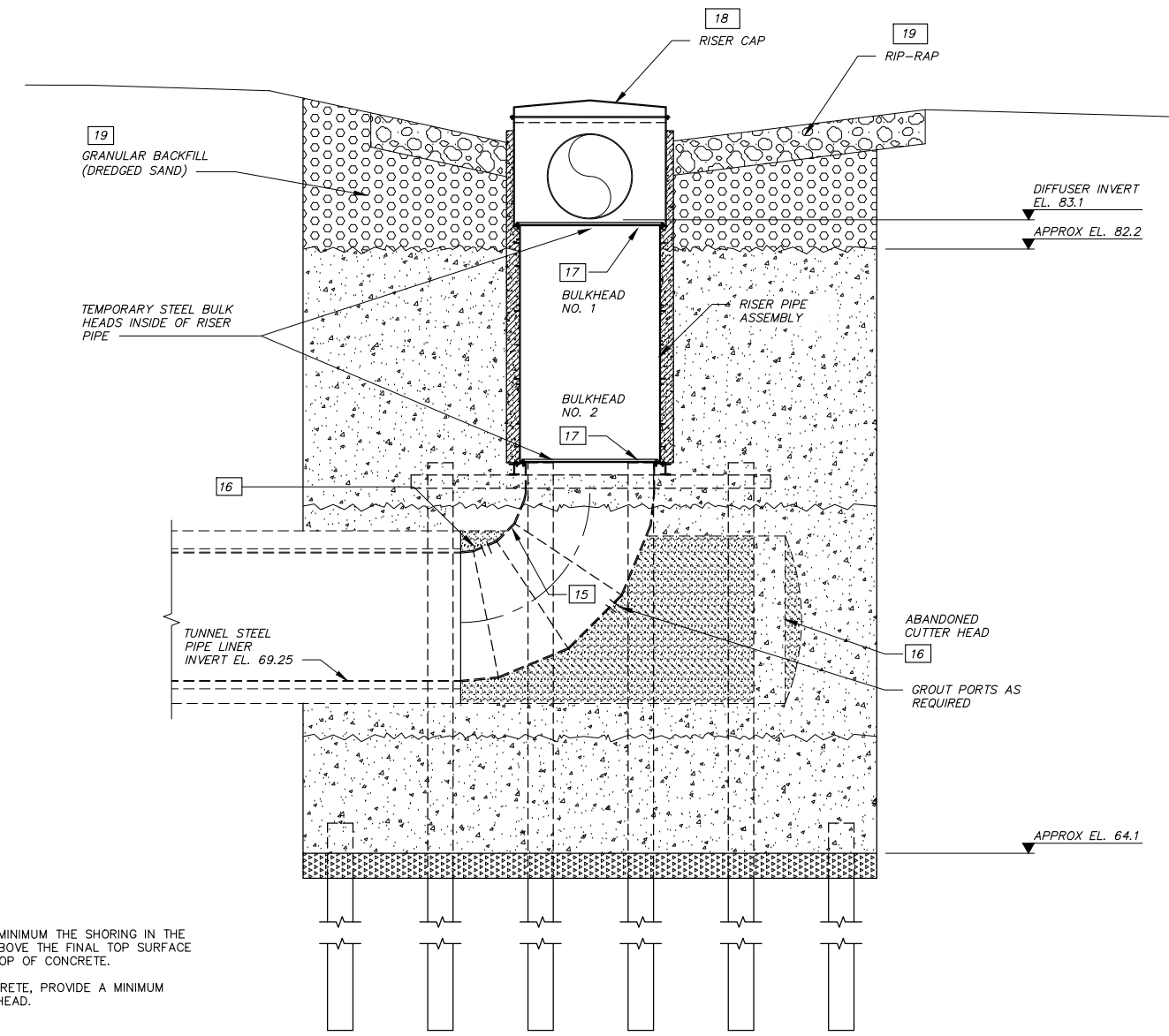
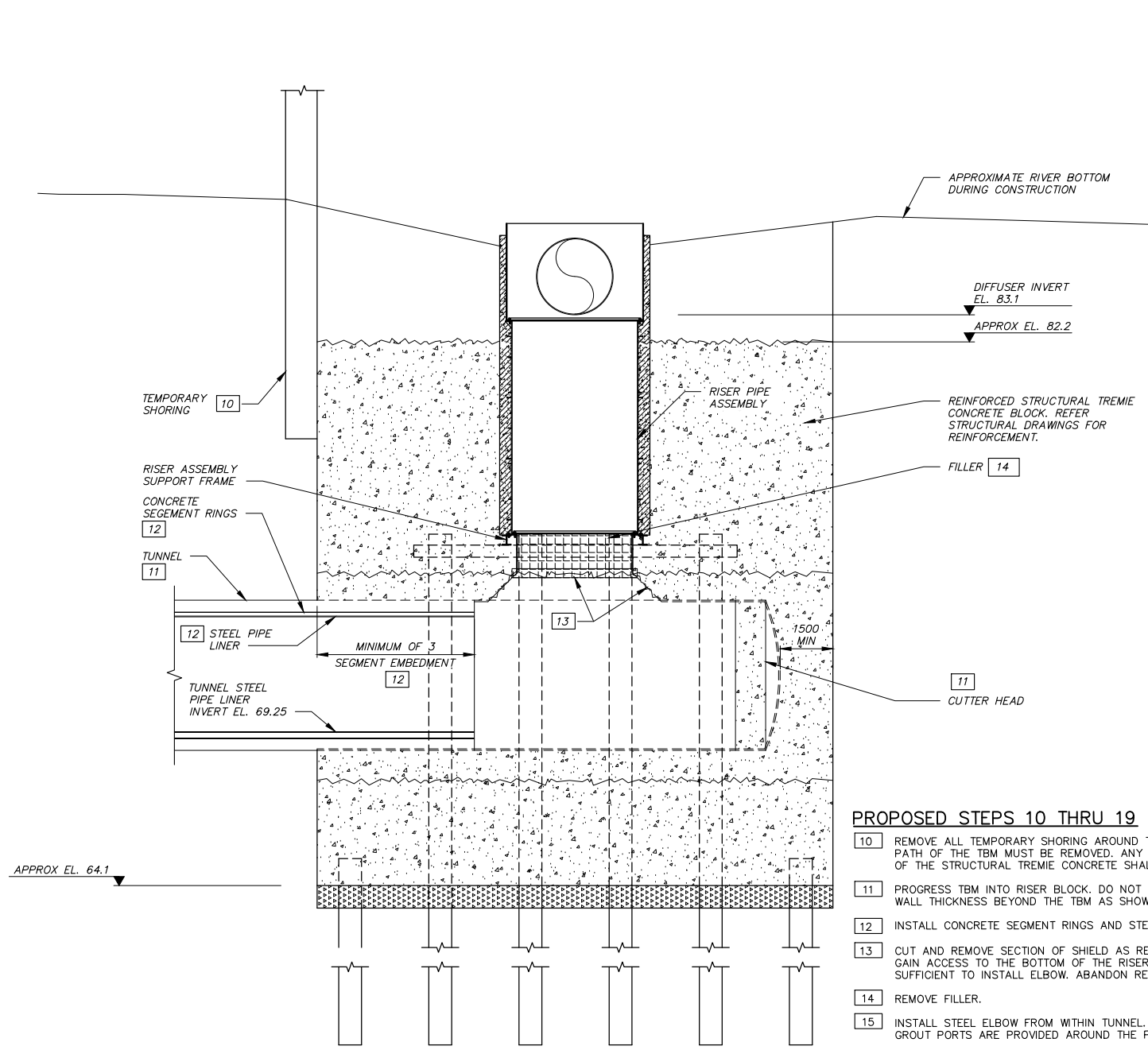


**CHECK PRINT**  
THIS DRAWING HAS NOT BEEN APPROVED, AND MAY CONTAIN ERRORS AND OMISSIONS.  
Professional Seal

Issue	Date	Des'n	Dr'n	Chkd	App'd	Description
P3	NOV. 2017	CSC	CEB	PFB	JNC	ISSUED FOR PERMIT REVIEW
P2	SEP. 2017	CSC	CEB	PFB	JNC	ISSUED FOR 90% DESIGN REVIEW
P1	SEP. 2017	CSC	CEB	PFB	JNC	ISSUED FOR INTERIM LCS DESIGN REVIEW

Design: CSC Drawn: CEB Checked: PFB JNC Approved JEN Manager		SCALE: 1:100 DISTRICT FILE SF-1933 DRAWING NUMBER X-A61S0082
<b>GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT</b> ANNACIS ISLAND WWTP NEW OUTFALL SYSTEM CONSTRUCTION SERVICES FOR THE OUTFALL <b>NOS RISER SHAFT CONSTRUCTION SEQUENCE 2</b>		
SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO <b>P3</b>		

2017-10-17 15:26 Bldgbooker G:\chm\m\valderbooker\2821985\X-A61S0082 - PERMIT.dwg



**PROPOSED STEPS 10 THRU 19**

- 10 REMOVE ALL TEMPORARY SHORING AROUND THE PERIMETER. AT A MINIMUM THE SHORING IN THE PATH OF THE TBM MUST BE REMOVED. ANY SHORING EXTENDING ABOVE THE FINAL TOP SURFACE OF THE STRUCTURAL TREMIE CONCRETE SHALL BE CUT DOWN TO TOP OF CONCRETE.
- 11 PROGRESS TBM INTO RISER BLOCK. DO NOT OVERCUT TREMIE CONCRETE, PROVIDE A MINIMUM WALL THICKNESS BEYOND THE TBM AS SHOWN. ABANDON CUTTER HEAD.
- 12 INSTALL CONCRETE SEGMENT RINGS AND STEEL LINING.
- 13 CUT AND REMOVE SECTION OF SHIELD AS REQ'D AND REMOVE CONCRETE ABOVE TUNNEL TO GAIN ACCESS TO THE BOTTOM OF THE RISER PIPE. EXTENTS OF CUTTING AND REMOVAL TO BE SUFFICIENT TO INSTALL ELBOW. ABANDON REMAINING TBM SHIELD IN PLACE.
- 14 REMOVE FILLER.
- 15 INSTALL STEEL ELBOW FROM WITHIN TUNNEL. ELBOW WILL BE INSTALLED IN WELDED SECTION. GROUT PORTS ARE PROVIDED AROUND THE PERIMETER OF THE ELBOW.
- 16 GROUT ANNUAL SPACE BEHIND ELBOW. PERMANENTLY SEAL GROUT PORTS WITH WELDED STEEL COMPONENTS, COAT AS REQ'D. COMPLETE COATINGS ON INSIDE OF ELBOW.
- 17 FLOOD THE TUNNEL PRIOR TO ATTEMPTING TO REMOVE BULKHEADS. BLEED BULKHEAD NO. 1 AND REMOVE. BLEED BULKHEAD NO. 2 AND REMOVE. REMOVAL OF BULKHEADS SHALL BE AFTER APPROVAL OF THE CONSTRUCTION MANAGER.
- 18 INSTALL RISER CAP
- 19 PLACE BACKFILL AND RIP-RAP ABOVE CONC BLOCK.

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

**CDM Smith**  
1001-4710 Kingsway  
Burnaby, BC V5H 4M2  
Canada  
Phone: 604-431-0242

**CHECK PRINT**  
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Professional Seal

Issue	Date	Des	Dr	Chkd	Appd	Description
P3	NOV. 2017	CSC	CEB	PFB	JNC	ISSUED FOR PERMIT REVIEW
P2	SEP. 2017	CSC	CEB	PFB	JNC	ISSUED FOR 90% DESIGN REVIEW
P1	SEP. 2017	CSC	CEB	PFB	JNC	ISSUED FOR INTERIM LCS DESIGN REVIEW

0 20 Bar is 20mm On Original Drawing. If Not On This Sheet, Adjust Scales Accordingly.

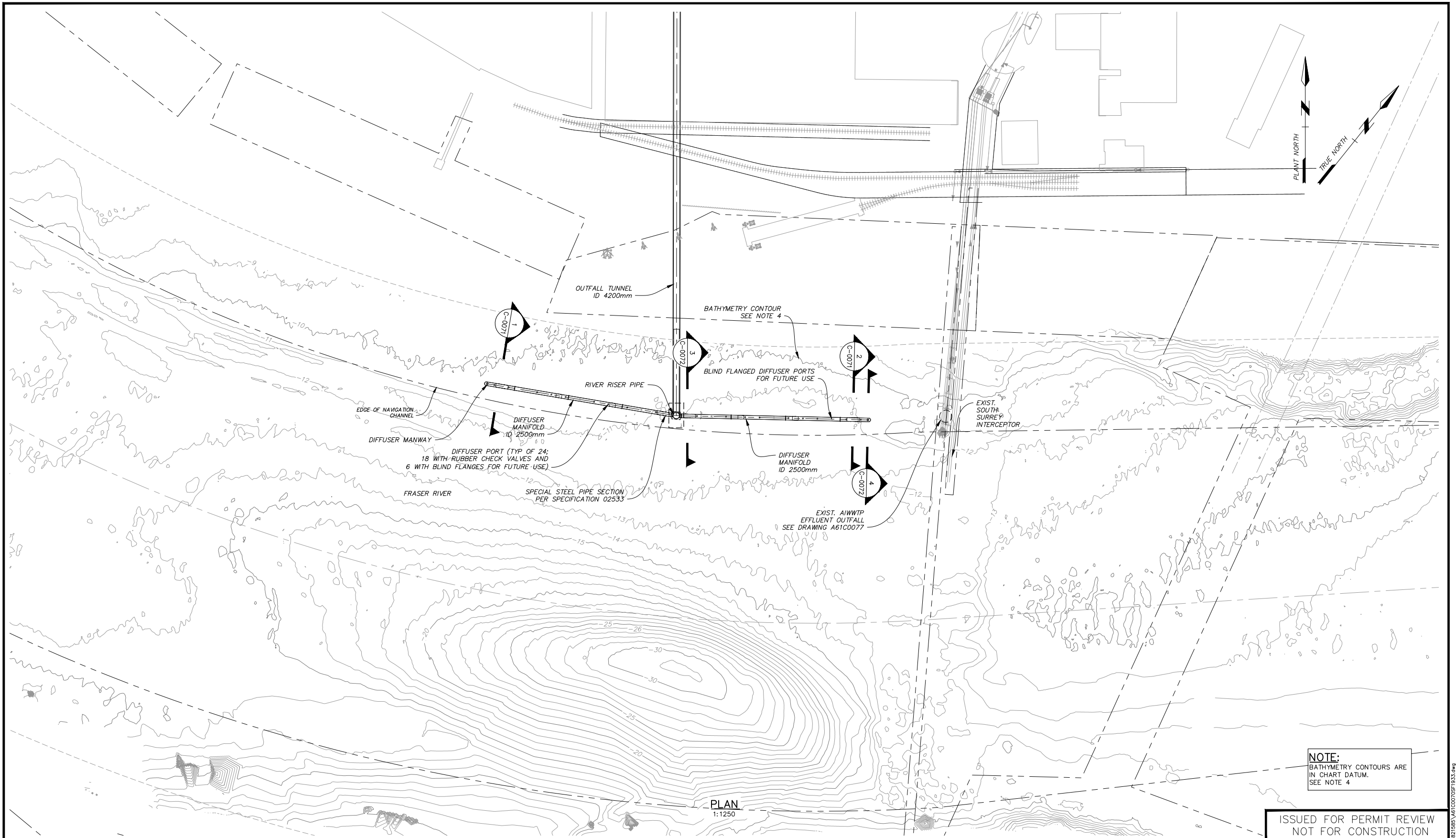
GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT  
ANNACIS ISLAND WWTP  
NEW OUTFALL SYSTEM  
CONSTRUCTION SERVICES FOR THE OUTFALL  
RISER SHAFT  
CONSTRUCTION SEQUENCE 3

Design: CSC  
Drawn: CEB  
Checked: PFB  
JNC  
Approved  
JEN  
Manager

SCALE: 1:100  
DISTRICT FILE SF-1933  
DRAWING NUMBER X-A61S0083

SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P3

2017-10-17 14:57 Bldgbackce G:\chm\m\valderbackce\2821985\X-A61S0083 - PERMIT.dwg



**NOTE:**  
BATHYMETRY CONTOURS ARE  
IN CHART DATUM.  
SEE NOTE 4

**ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION**

**PLAN**  
1:1250

- NOTES:**
- COORDINATES ARE UTM NAD83 ZONE 10 - 4.0.0.BC.1.GVRD GROUND UNITS. COMBINED SCALE FACTOR = 0.9996026.
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  - ANNACIS ISLAND RAILCAR BARGE TERMINAL LOCATION PER SOUTHERN RAILWAY BRITISH COLUMBIA DRAWING FILE 25141102, MAY 2009. LOCATION IS APPROXIMATE.
  - DIFFUSER'S ROCK ARMORING AND DIFFUSER PROTECTIVE STRUCTURES NOT SHOWN FOR CLARITY.



Professional Seal

Issue	Date	Des	Dr'n	Chkd	App'd	Description
P4	NOV. 2017	SR	CEB	MSS	JNC	ISSUED FOR PERMIT REVIEW
P3	AUG. 2017	SR	CEB	MSS	JNC	ISSUED FOR 90% DESIGN REVIEW
P2	MAR. 2017	SR	CEB	MSS	JNC	ISSUED FOR 60% DESIGN REVIEW
P1	AUG. 2016	SR	CEB	MSS	JNC	ISSUED FOR PRELIMINARY DESIGN REVIEW

**GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT**

Design: SR  
Drawn: CEB  
Checked: MSS

**ANNACIS ISLAND WWTP  
NEW OUTFALL SYSTEM  
CONSTRUCTION SERVICES FOR THE OUTFALL**

**A61 - NOS  
DIFFUSER MANIFOLD RIVER PLAN**

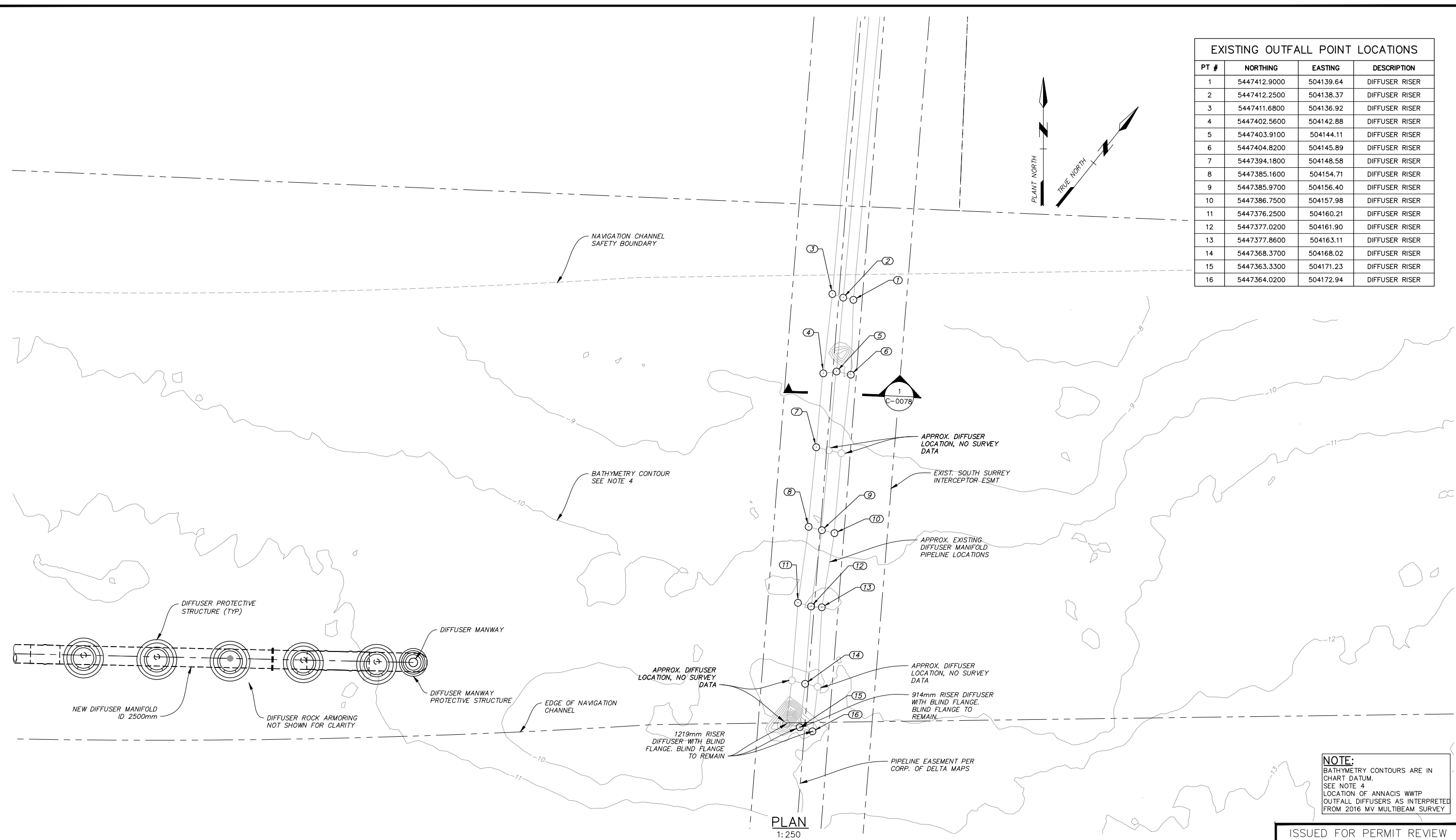
JNC Approved  
JEN Manager

SCALE: 1:1250  
DISTRICT FILE SF-1933  
DRAWING NUMBER A61C0070

SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P4

xref files: C:\cdm\m\VA\28251585\A61C0070SF1933.dwg 18:15 RV C:

EXISTING OUTFALL POINT LOCATIONS			
PT #	NORTHING	EASTING	DESCRIPTION
1	5447412.9000	504139.64	DIFFUSER RISER
2	5447412.2500	504138.37	DIFFUSER RISER
3	5447411.6800	504136.92	DIFFUSER RISER
4	5447402.5600	504142.88	DIFFUSER RISER
5	5447403.9100	504144.11	DIFFUSER RISER
6	5447404.8200	504145.89	DIFFUSER RISER
7	5447394.1800	504148.58	DIFFUSER RISER
8	5447385.1600	504154.71	DIFFUSER RISER
9	5447385.9700	504156.40	DIFFUSER RISER
10	5447386.7500	504157.98	DIFFUSER RISER
11	5447376.2500	504160.21	DIFFUSER RISER
12	5447377.0200	504161.90	DIFFUSER RISER
13	5447377.8600	504163.11	DIFFUSER RISER
14	5447368.3700	504168.02	DIFFUSER RISER
15	5447363.3300	504171.23	DIFFUSER RISER
16	5447364.0200	504172.94	DIFFUSER RISER



**NOTE:**  
 BATHYMETRY CONTOURS ARE IN CHART DATUM.  
 SEE NOTE 4  
 LOCATION OF ANNACIS WWTP OUTFALL DIFFUSERS AS INTERPRETED FROM 2016 MV MULTIBEAM SURVEY

ISSUED FOR PERMIT REVIEW  
 NOT FOR CONSTRUCTION

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  - ELEVATIONS ARE IN METERS AND REFER TO CVD28GVRD2005 GEODETIC DATUM. 100m HAS BEEN ADDED TO ALL ELEVATIONS AND TIED TO BENCHMARK 87H3501 (ELEV: 3.546'). TBM ELEV: 103.546'.
  - TOPOGRAPHICAL SURVEY PROVIDED BY PROTECH ON JANUARY 2013.
  - RIVER BOTTOM (BATHYMETRY ELEVATION IN TIDE & CHART DATUM (EL 0.00 GEODETIC=EL+1.59 TIDE & CHART). RIVER BATHYMETRY IS VARIABLE. CCG BATHYMETRY SURVEY DATA FROM JANUARY 2016.
  - NEW STRUCTURES AND DIFFUSER MANIFOLD PIPELINE ARE IN AIWWTP DATUM PER NOTE 2 ABOVE.
  - ANNACIS ISLAND RAILCAR BARGE TERMINAL LOCATION PER SOUTHERN RAILWAY BRITISH COLUMBIA DRAWING FILE 25141102, MAY 2009. LOCATION IS APPROXIMATE.

**CDM Smith**  
 1001-4710 Kingsway  
 Burnaby, BC V5H 4M2  
 Canada  
 Phone: 604-431-0242

Professional Seal

Issue	Date	Desn	Dr'n	Chkd	App'd	Description
P3	NOV. 2017	SR	CEB	MSS	JNC	ISSUED FOR PERMIT REVIEW
P2	AUG. 2017	RV	CEB	MSS	JNC	ISSUED FOR 90% DESIGN REVIEW
P1	MAR. 2017	RV	CEB	MSS	JNC	ISSUED FOR 60% DESIGN REVIEW

GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT

ANNACIS ISLAND WWTP  
 NEW OUTFALL SYSTEM  
 CONSTRUCTION SERVICES FOR THE OUTFALL

A61 - NOS  
 EXISTING OUTFALL PLAN

SCALE: 1:250  
 DISTRICT FILE SF-1933  
 DRAWING NUMBER A61C0077

DESIGN: RV  
 DRAWN: CEB  
 CHECKED: MSS  
 JNC Approved  
 JEN Manager

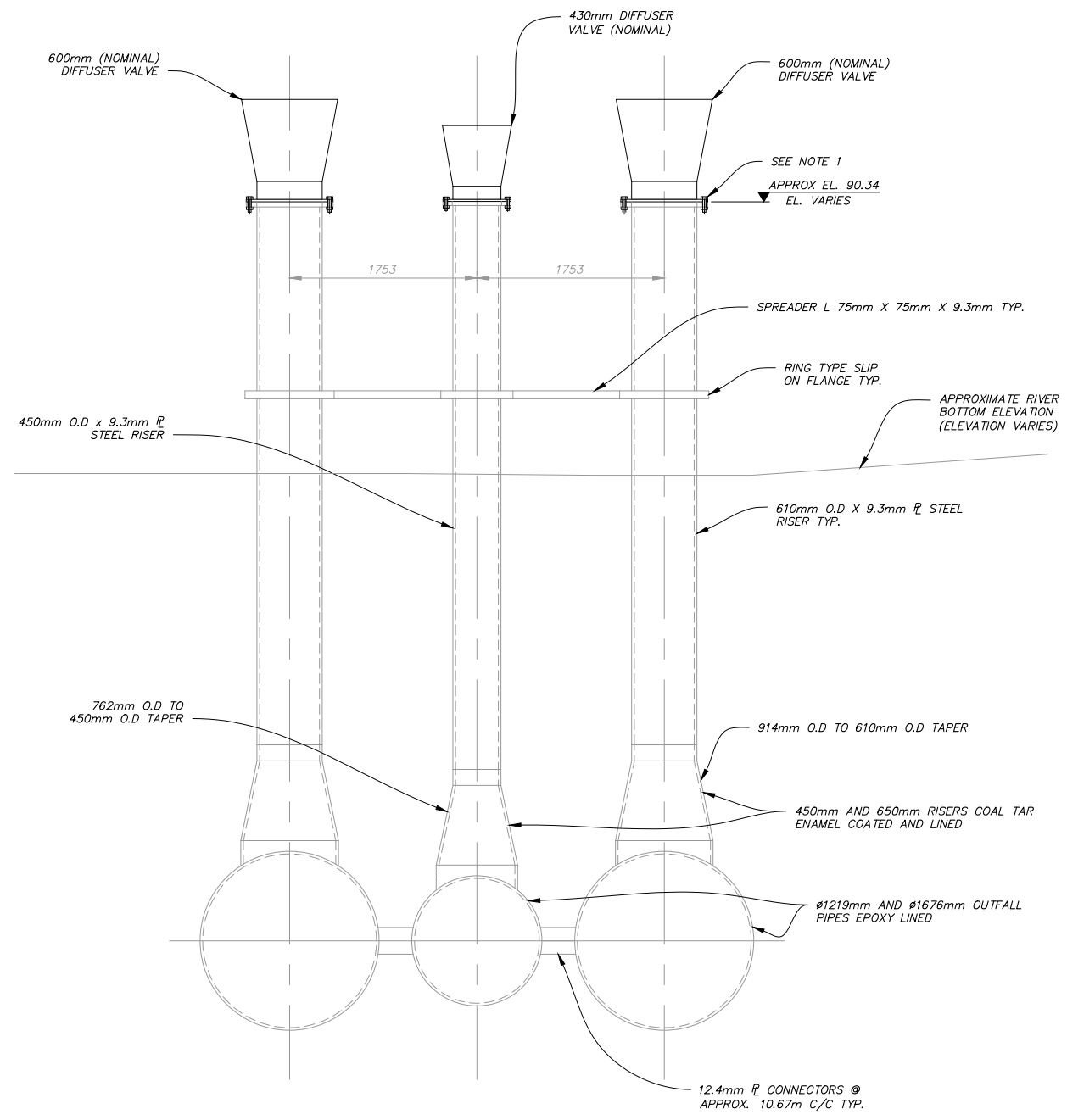
Professional Seal

Bar is 20mm On Original Drawing. If Not On This Sheet, Adjust Scales Accordingly.

SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P.3

2017-11-06 18:56 RV G:\cdm\m\p\2017\1933\A61C0077\A61C0077.dwg

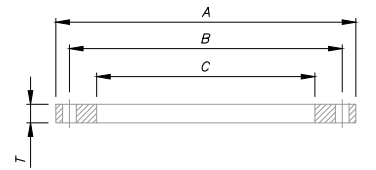




TYPICAL CROSS SECTION OF EXISTING RISERS AND DIFFUSER

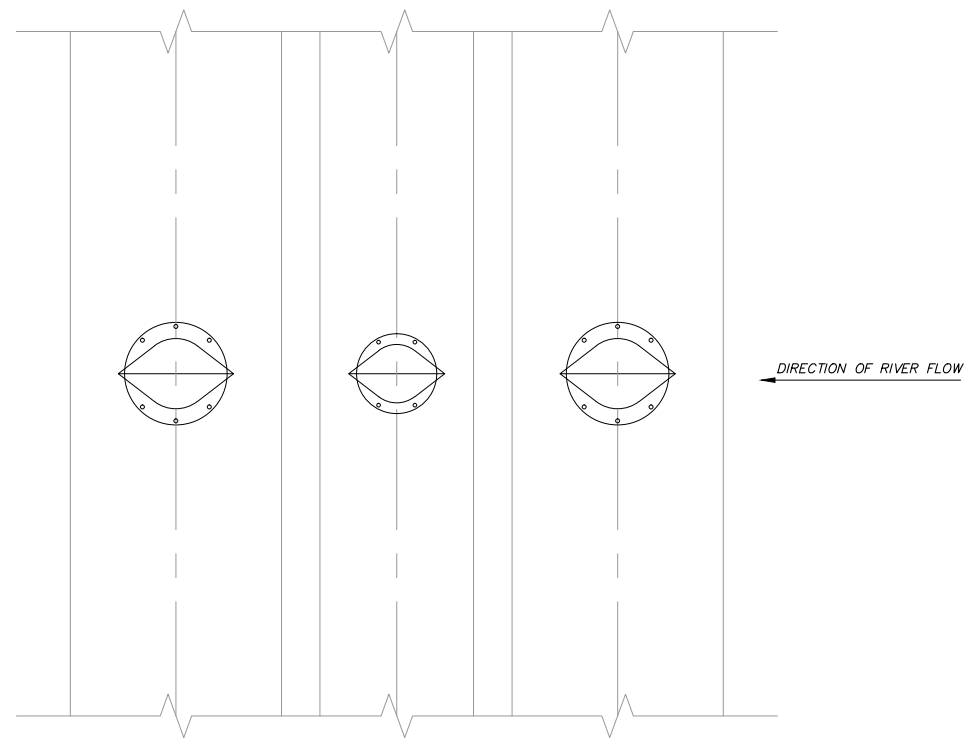
SECTION 1  
1:30 C-0077

- NOTES:**
1. REMOVE SCALE AND RUST BUILD UP IN ALL FLANGE BOLT HOLES. REMOVE BUILD UP ON FACE OF FLANGE TO MAKE A NEARLY FLAT SMOOTH SURFACE SUITABLE FOR MOUNTING DIFFUSER VALVE.
  2. CONFIRM BOLT PATTERN, FLANGE DIMENSIONS, AND BOLT PATTERN ORIENTATION. COORDINATE WITH DIFFUSER VALVE MANUFACTURER TO ENSURE VALVE IS ORIENTATED IN THE DIRECTION AS NOTED.
  3. USE SS 316 HARDWARE FOR MOUNTING.



PIPE SIZE mm	O.D. OF FLANGE A-mm	I.D. OF FLANGE C-mm	THICKNESS OF FLANGE T-mm	DRILLING		
				DIA. OF BOLT CIRCLE B-mm	BOLTS	
					NO.	DIA.
450	635	462	39.4	577.4	6	29
610	813	614	47.1	749.0	8	32
914	1168	919	60.1	1085.4	12	38
1219	1511	1224	69.4	1422.4	16	38

STEEL RING FLANGE DIMENSION TABLE



TYPICAL DIFFUSER VALVE PLAN VIEW DETAIL

DETAIL  
1:30

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION



Professional Seal

Issue	Date	Des	Dr'n	Chkd	App'd	Description
P2	NOV. 2017	SR	CEB	MSS	JNC	ISSUED FOR PERMIT REVIEW
P1	AUG. 2017	SR	CEB	MSS	JNC	ISSUED FOR 90% DESIGN REVIEW

GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT

ANNACIS ISLAND WWTP  
NEW OUTFALL SYSTEM  
CONSTRUCTION SERVICES FOR THE OUTFALL

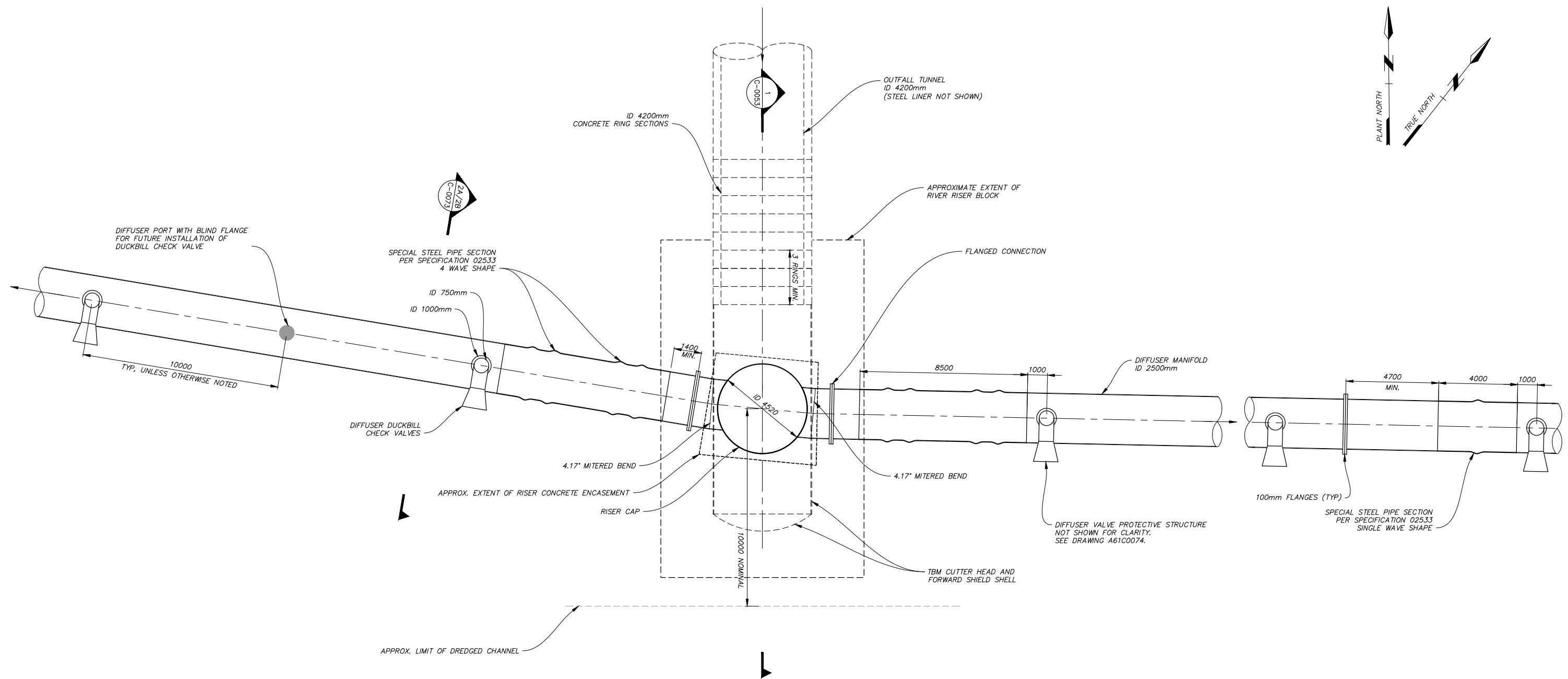
EXISTING OUTFALL SECTION AND DETAIL

SCALE: 1:30  
DISTRICT FILE SF-1933  
DRAWING NUMBER A61C0078

DESIGN: SR  
DRAWN: CEB  
CHECKED: MSS  
JNC Approved  
JEN Manager

SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P2

2017-11-06 18:57 RV C:\cdm\m\p\2017\1933\A61C0078\SF1933.dwg



**NOTES:**

1. CENTER TO CENTER SPACING BETWEEN TWO PORTS IS 10,000 MM, UNLESS OTHERWISE NOTED.
2. SEE STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

**RIVER RISER PLAN**

1:100

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

**CDM  
Smith**

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Burnaby, BC V5H 4M2  
Canada  
Phone: 604-431-0242

Professional Seal

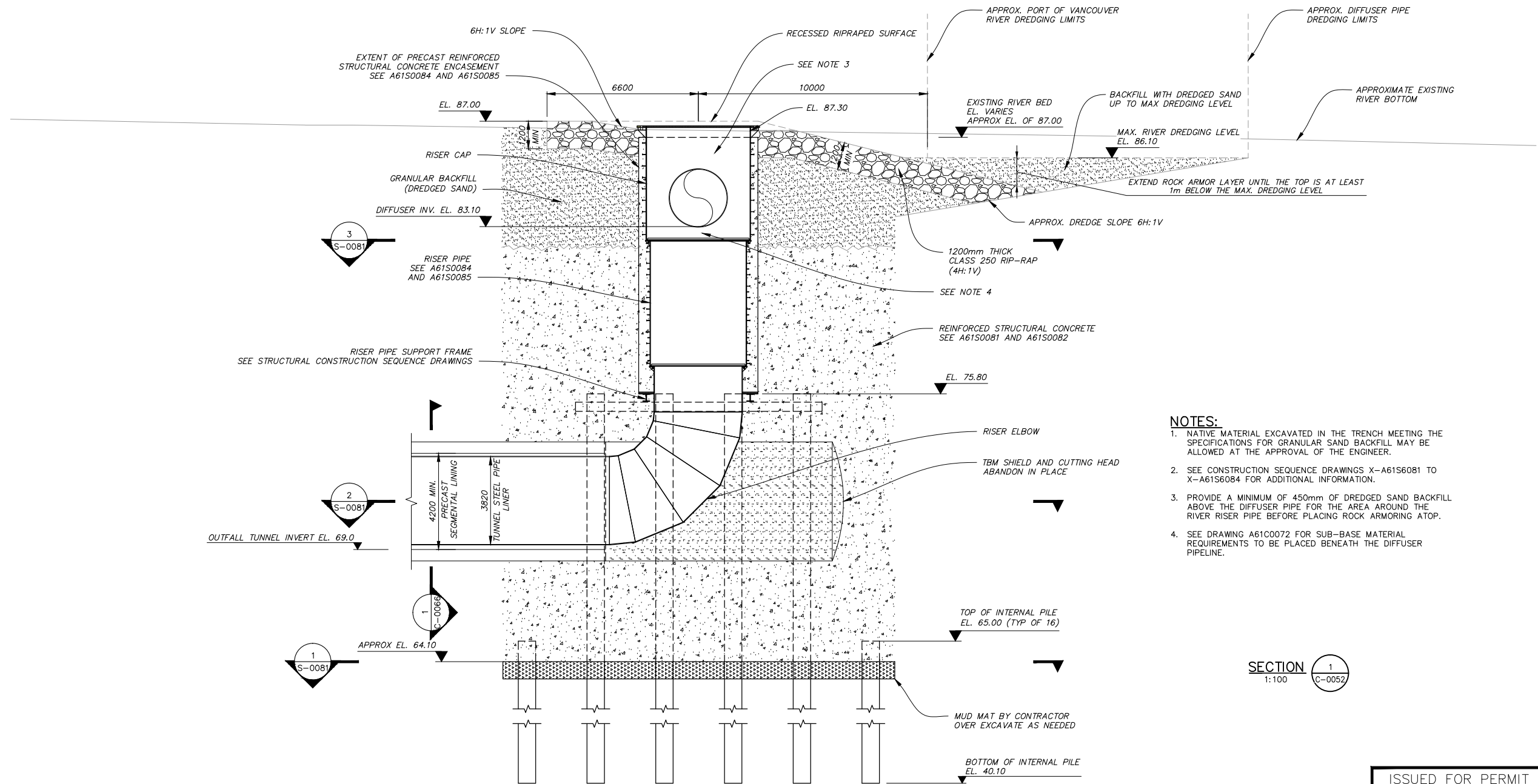
Issue	Date	Des'n	Dr'n	Chkd	App'd	Description
P4	NOV. 2017	DAW	CEB	MSS	JNC	ISSUED FOR PERMIT REVIEW
P3	AUG. 2017	DAW	CEB	MSS	JNC	ISSUED FOR 90% DESIGN REVIEW
P2	MAR. 2017	DAW	CEB	MSS	JNC	ISSUED FOR 60% DESIGN REVIEW
P1	AUG. 2016	DAW	CEB	MSS	JNC	ISSUED FOR PRELIMINARY DESIGN REVIEW

Design: DAW Drawn: CEB Checked: MSS JNC Approved JEN Manager			SCALE: 1:100 DISTRICT FILE SF-1933 DRAWING NUMBER A61C0052
GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT ANNACIS ISLAND WWTP NEW OUTFALL SYSTEM CONSTRUCTION SERVICES FOR THE OUTFALL A61 - NOS RIVER RISER PLAN TOP LEVEL			SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO <b>P4</b>

0 20 Bar is 20mm On Original Drawing. If Not On This Sheet, Adjust Scales Accordingly.

2017-11-06 17:20 RV G:\cdm\m\p\2017\1933\A61C0052\1933.dwg xref files:

HIGH WATER SURFACE EL. 102.00



**NOTES:**

1. NATIVE MATERIAL EXCAVATED IN THE TRENCH MEETING THE SPECIFICATIONS FOR GRANULAR SAND BACKFILL MAY BE ALLOWED AT THE APPROVAL OF THE ENGINEER.
2. SEE CONSTRUCTION SEQUENCE DRAWINGS X-A61S6081 TO X-A61S6084 FOR ADDITIONAL INFORMATION.
3. PROVIDE A MINIMUM OF 450mm OF DREDGED SAND BACKFILL ABOVE THE DIFFUSER PIPE FOR THE AREA AROUND THE RIVER RISER PIPE BEFORE PLACING ROCK ARMORING ATOP.
4. SEE DRAWING A61C0072 FOR SUB-BASE MATERIAL REQUIREMENTS TO BE PLACED BENEATH THE DIFFUSER PIPELINE.

SECTION 1  
1:100  
C-0052

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

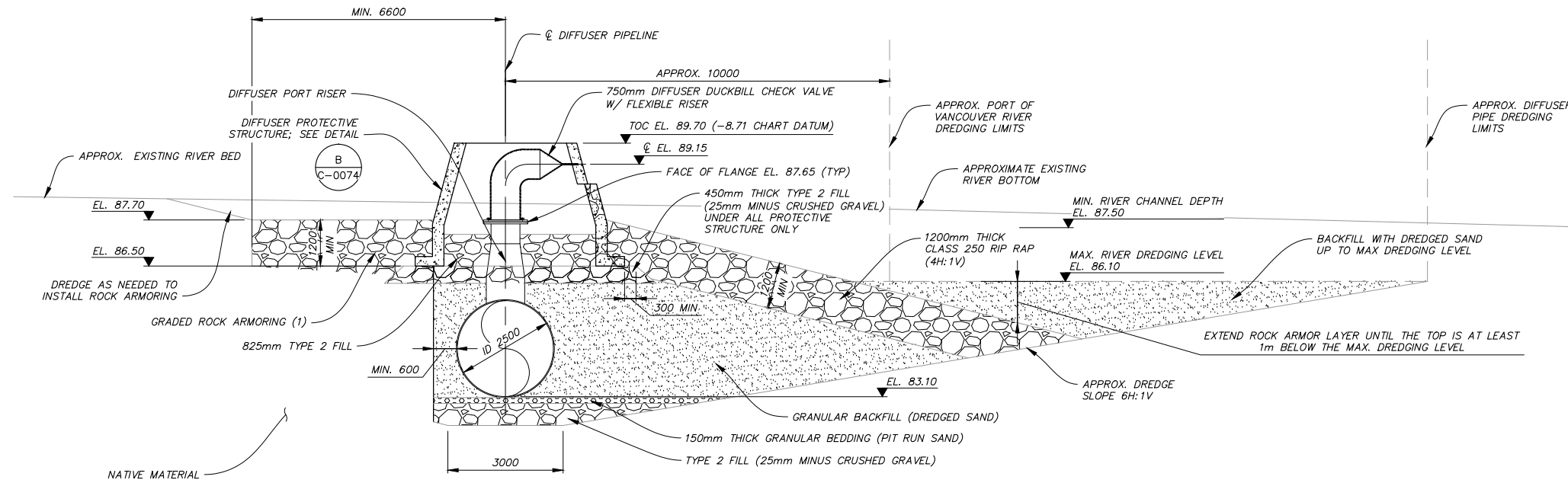


Professional Seal

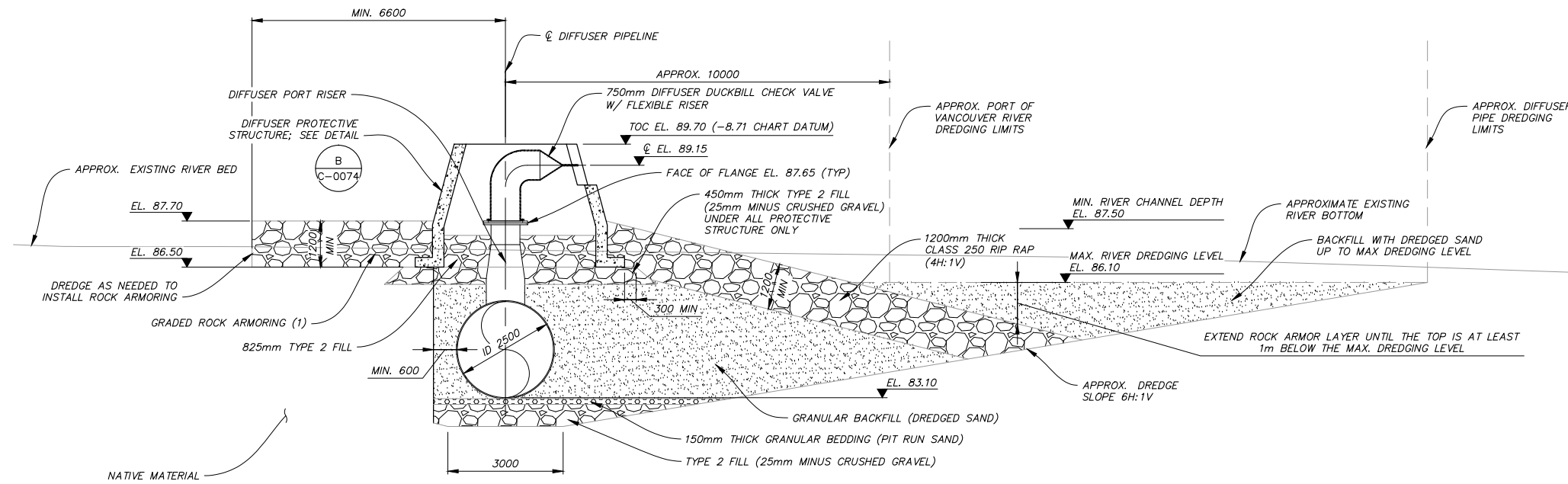
Issue	Date	Desn	Dr'n	Chkd	App'd	Description
P4	NOV. 2017	DAW	CEB	MSS	JNC	ISSUED FOR PERMIT REVIEW
P3	AUG. 2017	DAW	CEB	MSS	JNC	ISSUED FOR 90% DESIGN REVIEW
P2	MAR. 2017	DAW	CEB	MSS	JNC	ISSUED FOR 60% DESIGN REVIEW
P1	AUG. 2016	DAW	CEB	MSS	JNC	ISSUED FOR PRELIMINARY DESIGN REVIEW

Design: DAW Drawn: CEB Checked: MSS JNC Approved JEN Manager		SCALE: 1:100 DISTRICT FILE SF-1933 DRAWING NUMBER A61C0053
SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P4		

xref files:



RIVER BED PROFILE  
SECTION 1  
1:75



RIVER BED PROFILE  
SECTION 2  
1:75

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION



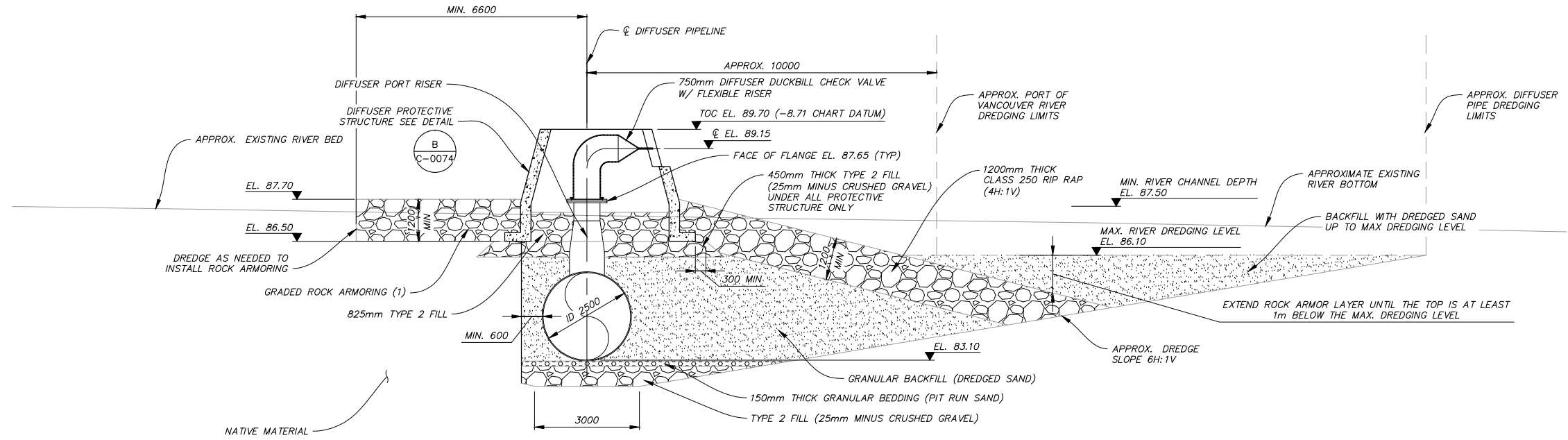
Professional Seal

Issue	Date	Des'n	Dr'n	Chkd	App'd	Description
P4	NOV. 2017	SR	CEB	MSS	JNC	ISSUED FOR PERMIT REVIEW
P3	AUG. 2017	SR	CEB	MSS	JNC	ISSUED FOR 90% DESIGN REVIEW
P2	MAR. 2017	SR	CEB	MSS	JNC	ISSUED FOR 60% DESIGN REVIEW
P1	AUG. 2016	SR	CEB	MSS	JNC	ISSUED FOR PRELIMINARY DESIGN REVIEW

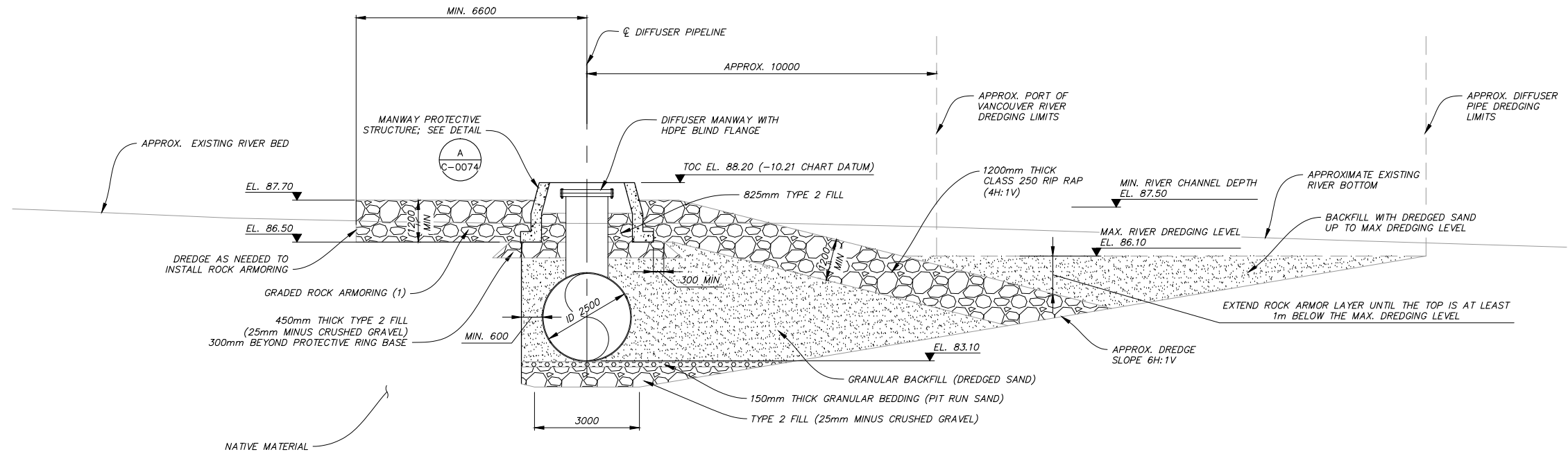
DESIGN: SR		<b>GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT</b> ANNACIS ISLAND WWTP NEW OUTFALL SYSTEM CONSTRUCTION SERVICES FOR THE OUTFALL  <b>A61 - NOS</b> <b>DIFFUSER MANIFOLD</b> <b>SECTIONS 1 OF 3</b>	SCALE: 1:75
DRAWN: CEB			DISTRICT FILE SF-1933
CHECKED: MSS			DRAWING NUMBER A61C0071
JNC Approved			
JEN Manager			

SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P4

2017-11-06 18:29 RV G:\cdm\m\p\22821585\A61C0071\SF1933.dwg xref files:



RIVER BED PROFILE  
SECTION 3  
1:75 C-0070



DIFFUSER PIPE END MANWAY SECTION  
SECTION 4  
1:75 C-0070

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

**CDM  
Smith**

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Burnaby, BC V5H 4M2  
Canada  
Phone: 604-431-0242

Professional Seal

Issue	Date	Des'n	Dr'n	Chkd	App'd	Description
P4	NOV. 2017	SR	CEB	MSS	JNC	ISSUED FOR PERMIT REVIEW
P3	AUG. 2017	SR	CEB	MSS	JNC	ISSUED FOR 90% DESIGN REVIEW
P2	MAR. 2017	SR	CEB	MSS	JNC	ISSUED FOR 60% DESIGN REVIEW
P1	AUG. 2016	SR	CEB	MSS	JNC	ISSUED FOR PRELIMINARY DESIGN REVIEW

DESIGNER		DRAWN		CHECKED		APPROVED	
Design:	SR	Drawn:	CEB	Checked:	MSS	JNC	Approved
						JEN	Manager

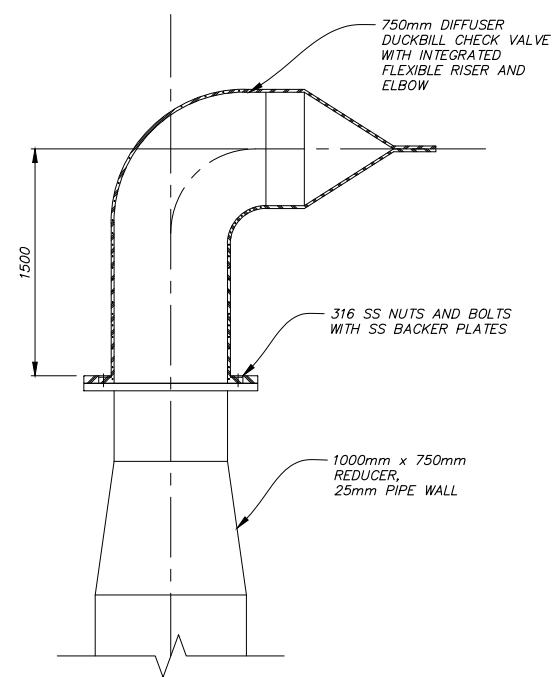
GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT  
ANNACIS ISLAND WWTP  
NEW OUTFALL SYSTEM  
CONSTRUCTION SERVICES FOR THE OUTFALL  
A61 - NOS  
DIFFUSER MANIFOLD  
SECTIONS 2 OF 3

SCALE: 1:75  
DISTRICT FILE SF-1933  
DRAWING NUMBER A61C0072

0 20 Bar is 20mm On Original Drawing. If Not On This Sheet, Adjust Scales Accordingly.

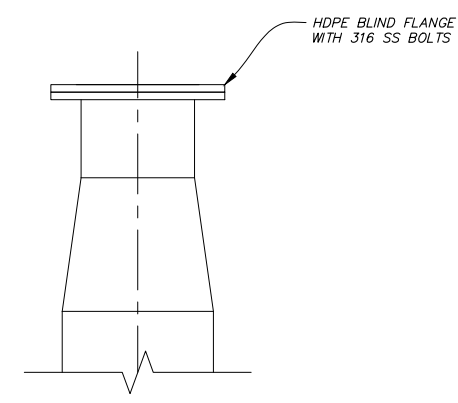
SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P4

2017-11-06 18:30 RV G:\cdm\m\p\22821585\A61C0072\SF1933.dwg xref files:



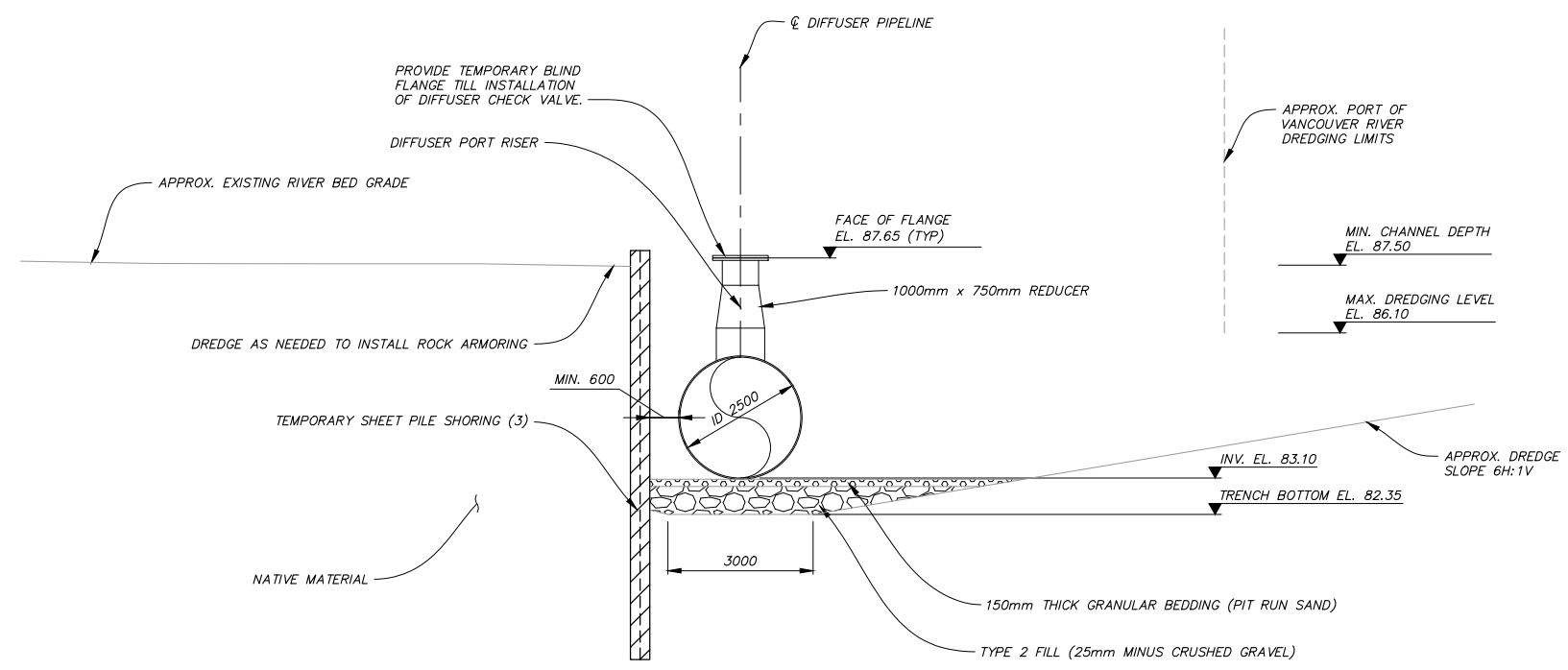
DIFFUSER PORT WITH CHECK VALVE

DETAIL A  
N.T.S.



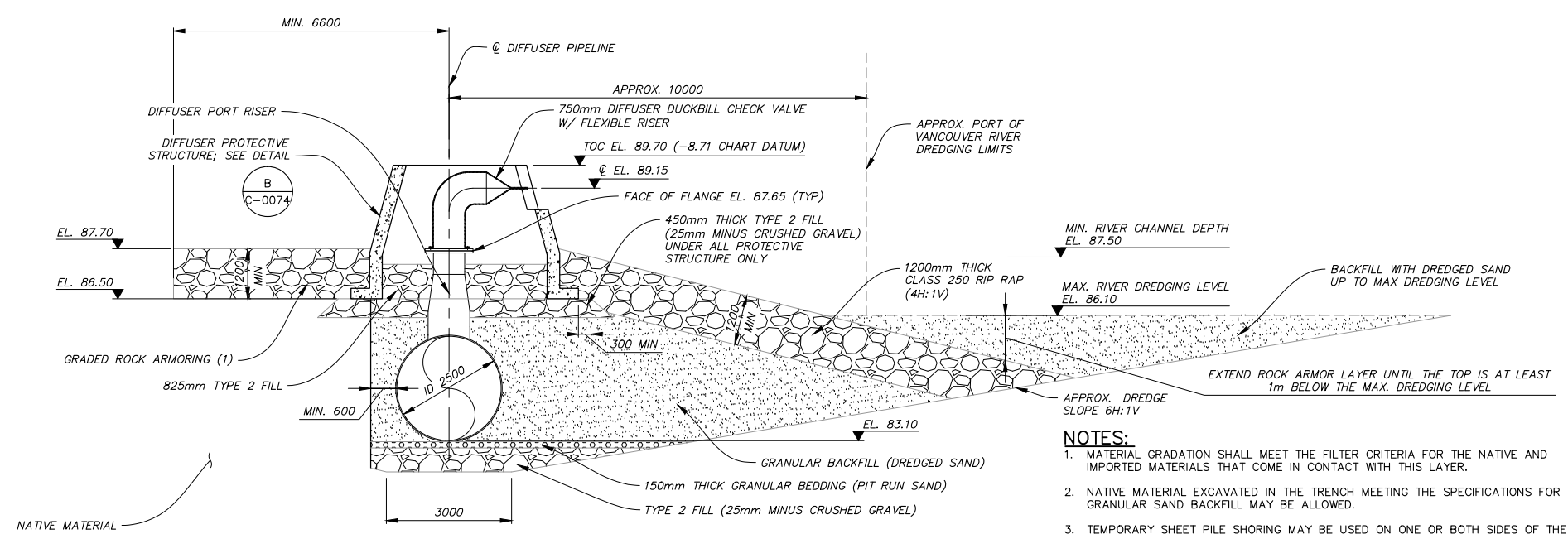
DIFFUSER PORT WITHOUT CHECK VALVE

DETAIL B  
N.T.S.



DIFFUSER MANIFOLD SECTION – GENERAL TEMPORARY SHORING CONDITIONS

SECTION 2A  
1:75 C-0052



DIFFUSER MANIFOLD SECTION – GENERAL INSTALLED CONDITIONS

SECTION 2B  
1:75 C-0052

- NOTES:**
- MATERIAL GRADATION SHALL MEET THE FILTER CRITERIA FOR THE NATIVE AND IMPORTED MATERIALS THAT COME IN CONTACT WITH THIS LAYER.
  - NATIVE MATERIAL EXCAVATED IN THE TRENCH MEETING THE SPECIFICATIONS FOR GRANULAR SAND BACKFILL MAY BE ALLOWED.
  - TEMPORARY SHEET PILE SHORING MAY BE USED ON ONE OR BOTH SIDES OF THE DIFFUSER MANIFOLD PIPE TO REDUCE DREDGING VOLUME. SHEET PILES MUST BE REMOVED FOLLOWING INSTALLATION AND BACKFILL OF THE DIFFUSER MANIFOLD AND BEFORE PLACEMENT OF THE ARMOR ROCK AND PRE-CAST CONCRETE RINGS.
  - ALL DIFFUSER DUCKBILL CHECK VALVES SHALL BE INSTALLED TO THE SAME ELEVATION.
  - INSTALL A CONCRETE PROTECTIVE COVER ON EACH PORT, BOTH VALVED AND BLIND FLANGED, TOTAL OF 24.

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION



Professional Seal

Issue	Date	Des'n	Dr'n	Chkd	App'd	Description
P4	NOV. 2017	SR	CEB	MSS	JNC	ISSUED FOR PERMIT REVIEW
P3	AUG. 2017	SR	CEB	MSS	JNC	ISSUED FOR 90% DESIGN REVIEW
P2	MAR. 2017	SR	CEB	MSS	JNC	ISSUED FOR 60% DESIGN REVIEW
P1	AUG. 2016	SR	CEB	MSS	JNC	ISSUED FOR PRELIMINARY DESIGN REVIEW

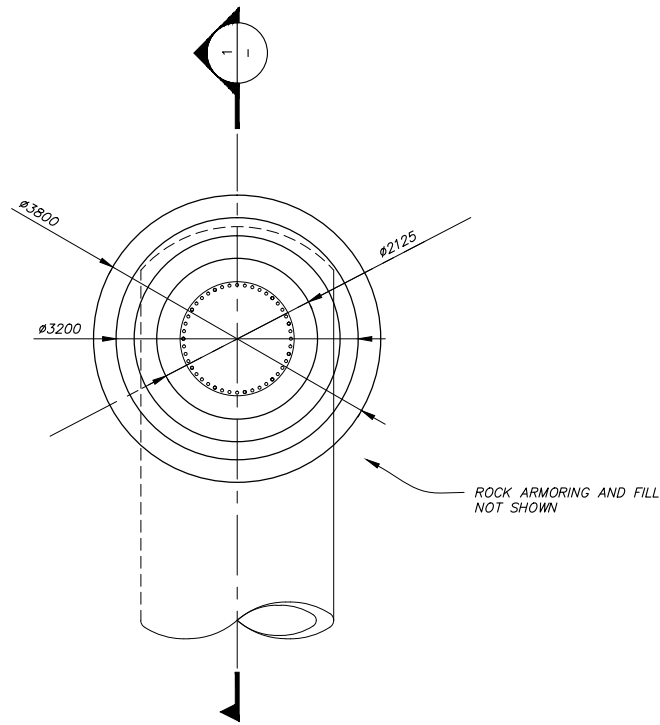
DESIGNER		DRAWN		CHECKED		APPROVED	
Design:	SR	Drawn:	CEB	Checked:	MSS	JNC	Approved
						JEN	Manager

GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT  
ANNACIS ISLAND WWTP  
NEW OUTFALL SYSTEM  
CONSTRUCTION SERVICES FOR THE OUTFALL  
A61 - NOS  
DIFFUSER MANIFOLD  
SECTION 3 OF 3

SCALE: AS NOTED  
DISTRICT FILE SF-1933  
DRAWING NUMBER A61C0073

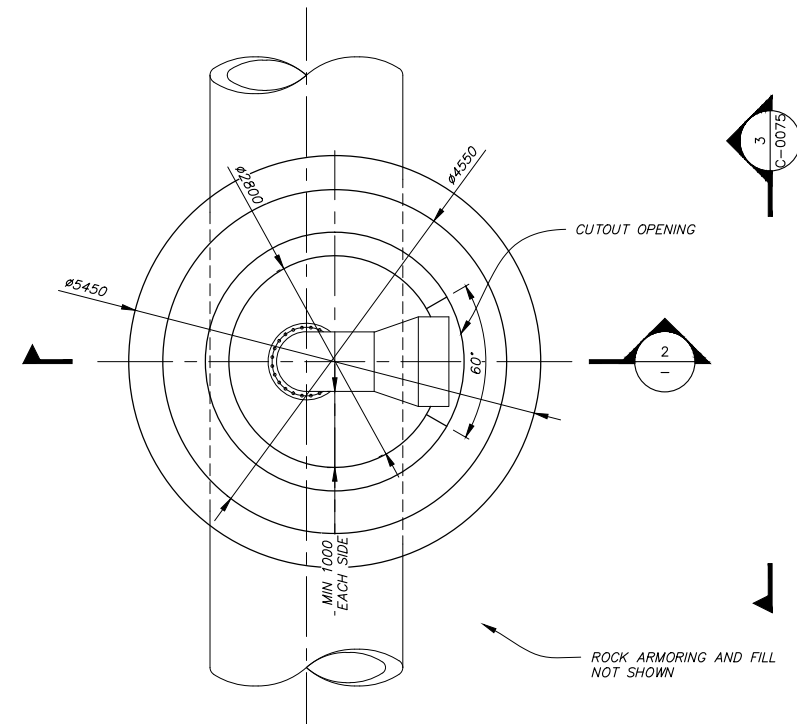
SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P4

2017-11-06 16:36:36 C:\cdm\m\p\2017\1585\A61C0073\F1933.dwg



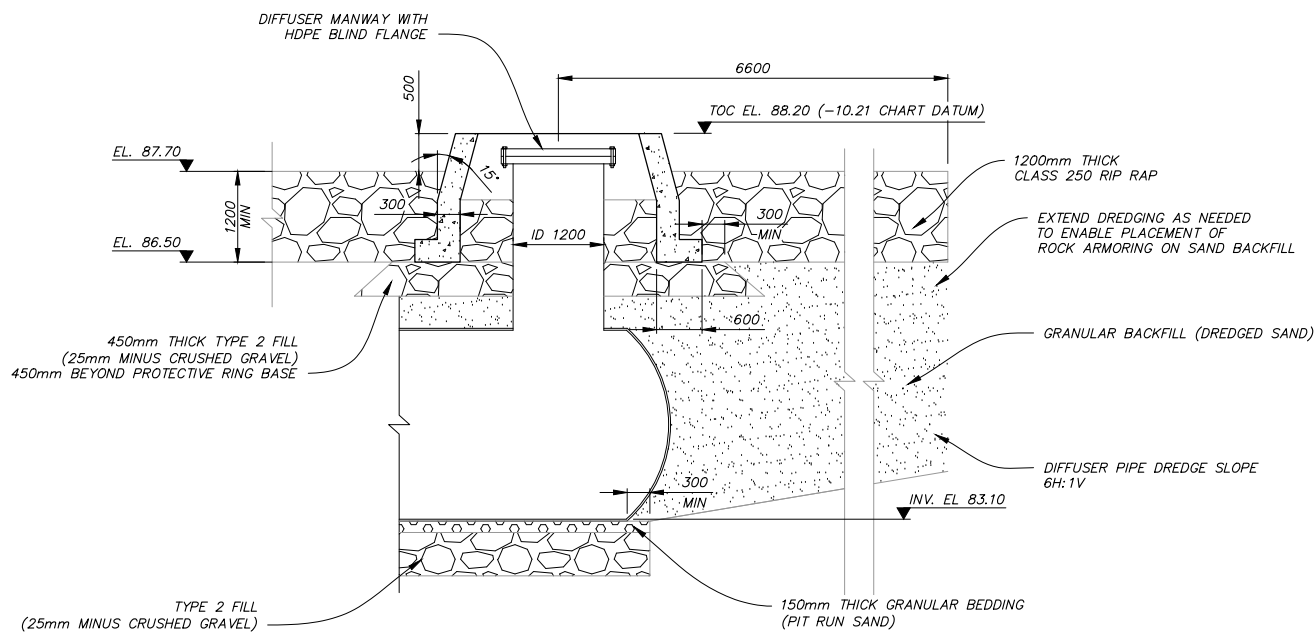
DIFFUSER PIPE END MANWAY PLAN

DETAIL A  
1:50  
C-0005



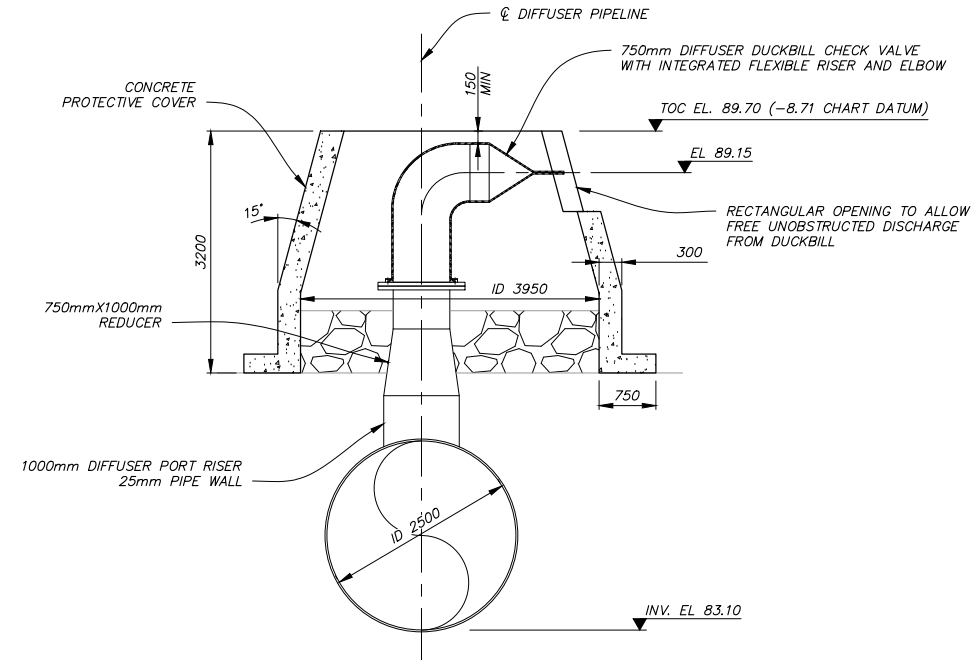
DIFFUSER MANIFOLD PLAN

DETAIL B B  
1:50  
C-0073 C-0005



DIFFUSER PIPE END MANWAY SECTION

SECTION 1  
1:50



DIFFUSER MANIFOLD SECTION

SECTION 2  
1:50

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

**CDM  
Smith**

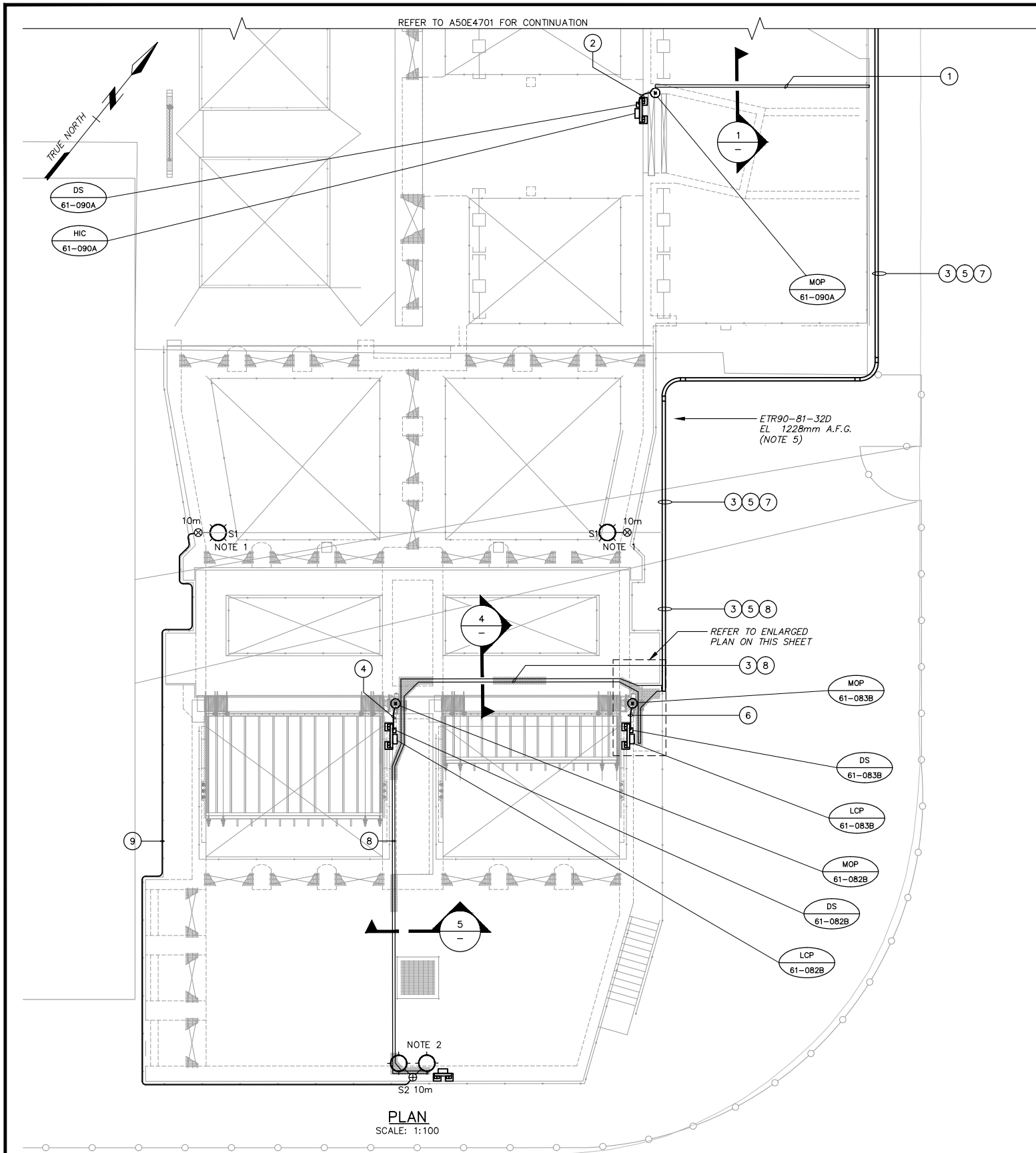
1001-4710 Kingsway  
Burnaby, BC V5H 4M2  
Canada  
Phone: 604-431-0242

Professional Seal

Issue	Date	Des'n	Dr'n	Chkd	App'd	Description
P4	NOV. 2017	SR	CEB	MSS	JNC	ISSUED FOR PERMIT REVIEW
P3	AUG. 2017	SR	CEB	MSS	JNC	ISSUED FOR 90% DESIGN REVIEW
P2	MAR. 2017	SR	CEB	MSS	JNC	ISSUED FOR 60% DESIGN REVIEW
P1	AUG. 2016	SR	CEB	MSS	JNC	ISSUED FOR PRELIMINARY DESIGN REVIEW

GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT		
Design: SR	ANNACIS ISLAND WWTP NEW OUTFALL SYSTEM CONSTRUCTION SERVICES FOR THE OUTFALL	SCALE: 1:50
Drawn: CEB		DISTRICT FILE SF-1933
Checked: MSS		DRAWING NUMBER A61C0074
JNC Approved	DIFFUSER MANIFOLD DETAILS 1	
JEN Manager		

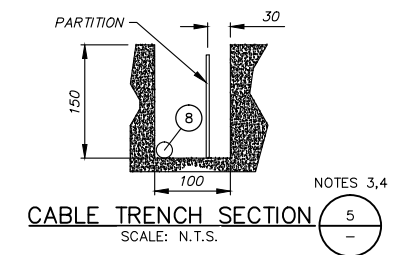
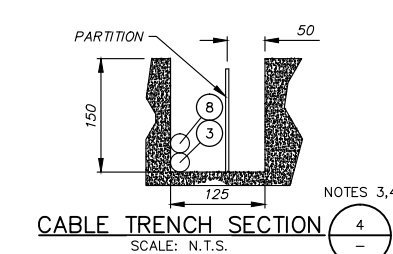
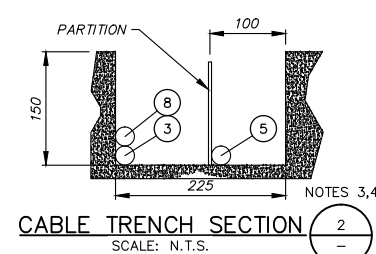
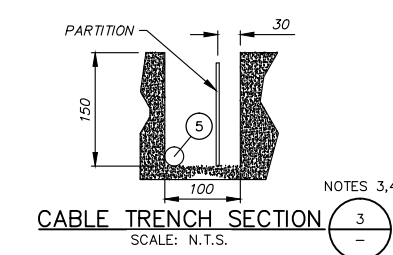
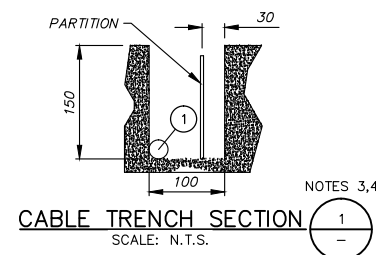
SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P4



LUMINAIRE SCHEDULE			
DESIGNATION	CATALOGUE NUMBER	DESCRIPTION	LAMP
S1	HUBBELL FXL-84L-190-5K-W-1-Y-GR OR EQUAL	SINGLE LED FLOOD LUMINAIRE, WIDE THROW, YOKE MOUNTED ON 10m, GALVANIZED ROUND STRAIGHT STEEL POLE WITH TOP CAP. PROVIDE STEEL POLE MOUNTING BRACKET, SPAULDING LIGHTING MODEL# 4040 OR EQUAL. PROVIDE HEAVY-DUTY CROSSARM FITTING, SPAULDING LIGHTING MODEL# 4090 OR EQUAL. REFER TO INDIVIDUAL LIGHTING PLANS FOR FLOOD LUMINAIRE TILT ANGLE REQUIREMENTS.	187W LED
S2	HUBBELL (2) FXL-84L-190-5K-W-1-Y-GR OR EQUAL	TWIN 90-DEGREE LED FLOOD LUMINAIRE, WIDE THROW, YOKE MOUNTED ON 10m, GALVANIZED ROUND STRAIGHT STEEL POLE WITH TOP CAP. PROVIDE STEEL POLE MOUNTING BRACKET, SPAULDING LIGHTING MODEL# 4040 OR EQUAL. PROVIDE HEAVY-DUTY CROSSARM FITTING, SPAULDING LIGHTING MODEL# 4090 OR EQUAL. REFER TO INDIVIDUAL LIGHTING PLANS FOR FLOOD LUMINAIRE TILT ANGLE REQUIREMENTS.	2-187W LED

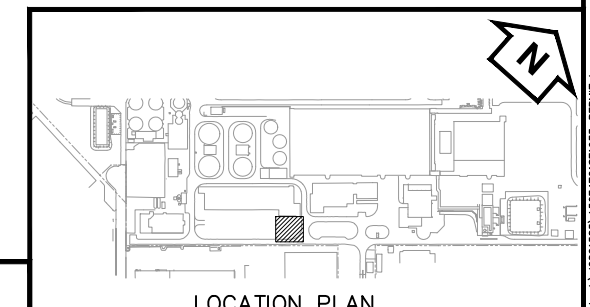
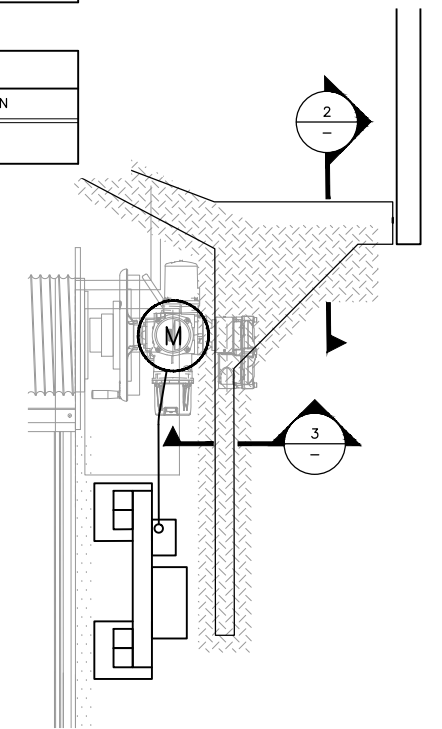
LEGEND	
SYMBOL	DESCRIPTION
	SINGLE POLE MOUNTED, ROADWAY, AREA OR FLOOD LUMINAIRE
	TWIN 90-DEGREE POLE MOUNTED, ROADWAY, AREA OR FLOOD LUMINAIRE

STATISTICS						
DESCRIPTION	SYMBOL	AVG	MAX	MIN	MAX/MIN	AVG/MIN
LCS	+	83.6 lux	143.3 lux	48.0 lux	3.0:1	1.7:1



**LEVEL CONTROL STRUCTURE (LCS)/OUTFALL SHAFT CABLE GROUPS:**

- 1 MCC80145/M61090A-F1 (LCS SLIDE GATE DS61090A)
- 2 MCC80145/M61090A-F2 (LCS SLIDE GATE ACTUATOR)
- 3 MCC80145/M61082B-F1 (LCS CREST GATE 1 DS61082B)
- 4 MCC80145/M61082B-F2 (LCS CREST GATE 1 ACTUATOR)
- 5 MCC80145/M61083B-F1 (LCS CREST GATE 2 DS61083B)
- 6 MCC80145/M61083B-F2 (LCS CREST GATE 2 ACTUATOR)
- 7 LDP80200A/S2-F1 (LCS AREA POLE LUMINAIRE)
- 8 LDP80200A/S2-F2 (LCS AREA POLE LUMINAIRE)
- 9 LDP80200A/S2-F3 (LCS AREA POLE LUMINAIRE)



- NOTES:
- SET TYPE "S1" FLOOD LUMINAIRE TILT ANGLE TO 0° PARALLEL TO THE STRUCTURE DECKING.
  - SET TYPE "S2" FLOOD LUMINAIRE TILT ANGLES TO 45° TO THE STRUCTURE DECKING.
  - CABLE TRENCH SECTIONS ON THIS DRAWING ILLUSTRATE LOCATIONS OF 600V AND 120V POWER CABLES. REFER TO DRAWING A50I4401 FOR CONTROL AND SIGNAL CABLE REQUIREMENTS.
  - REFER TO DETAIL C, STD S-007 FOR CABLE TRENCH CHECKER PLATE COVER REQUIREMENTS.
  - REFER TO DRAWINGS E4711 AND E4712 FOR CABLE TRAY SECTIONS, DETAILS AND REQUIREMENTS.



Professional Seal

Issue	Date	Des'n	Dr'n	Chkd	App'd	Description
P3	NOV. 2017	CSC	CEB	PFB	JNC	ISSUED FOR PERMIT REVIEW
P2	OCT. 2017	TCA	CDK	BJF	HTN	RE-ISSUED OF 90% ELECTRICAL FOR DESIGN REVIEW
P1	SEP. 2017	TCA	CDK	BJF	HTN	ISSUED FOR 90% DESIGN REVIEW

GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT

ANNACIS ISLAND WWTP  
NEW OUTFALL SYSTEM  
CONSTRUCTION SERVICES FOR THE OUTFALL

LAYOUT  
LEVEL CONTROL STRUCTURE (LCS)  
AREA 50 - POWER AND LIGHTING PLAN

SCALE: AS NOTED  
DISTRICT FILE SF-1933  
DRAWING NUMBER A50E4721

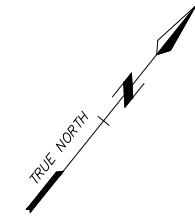
DESIGN: TCA  
DRAWN: CDK  
CHECKED: BJF  
HTN  
APPROVED: JEN  
MANAGER

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

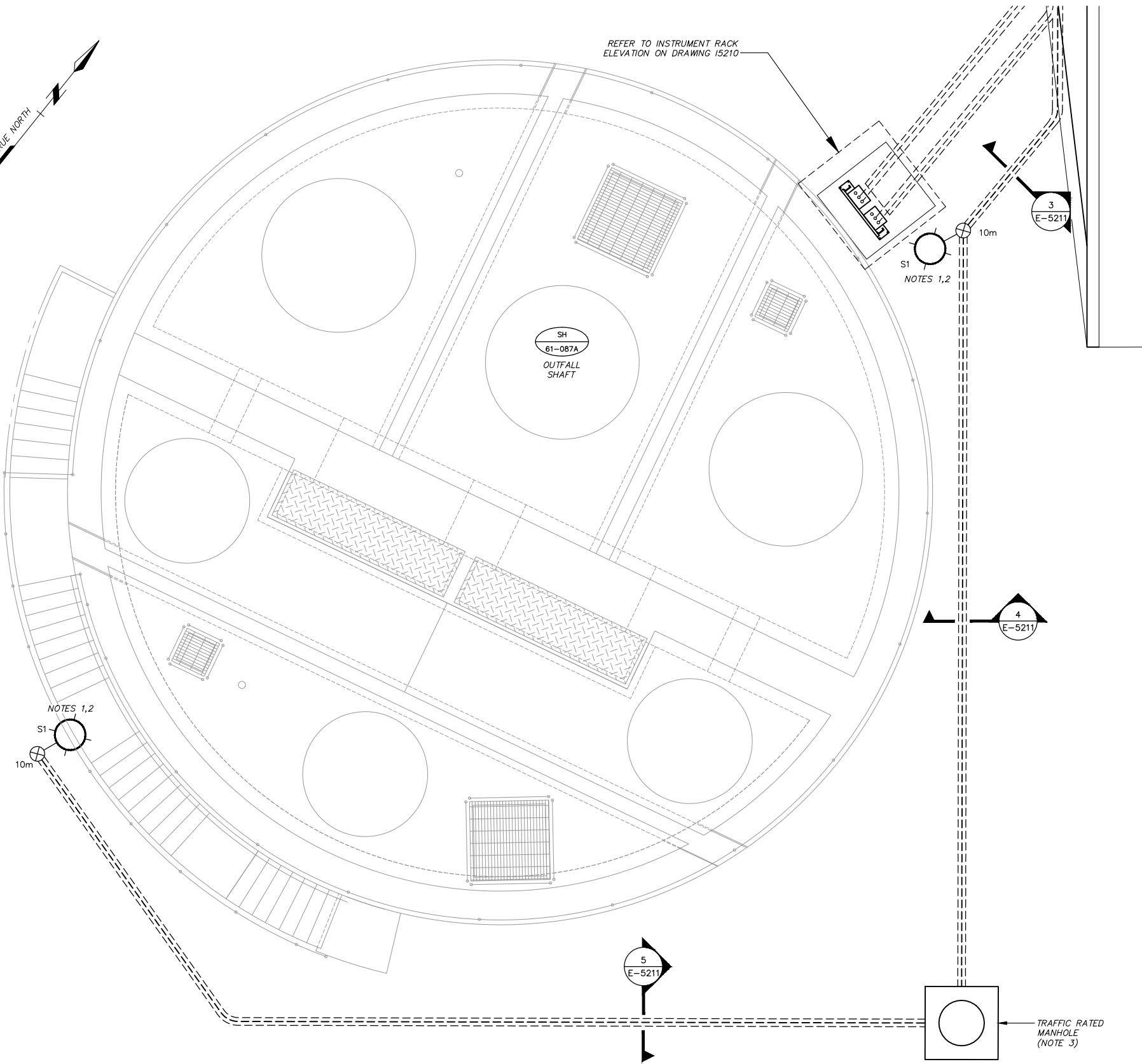
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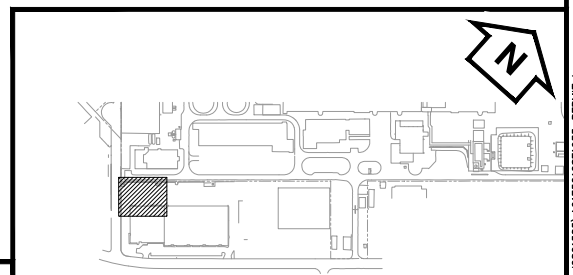
REFER TO INSTRUMENT RACK  
ELEVATION ON DRAWING 15210



LUMINAIRE SCHEDULE			
DESIGNATION	CATALOGUE NUMBER	DESCRIPTION	LAMP
S1	HUBBELL FXL-84L-190-5K-W-1-Y-GR OR EQUAL	SINGLE LED FLOOD LUMINAIRE, WIDE THROW, YOKE MOUNTED ON 10m, GALVANIZED ROUND STRAIGHT STEEL POLE WITH TOP CAP. PROVIDE STEEL POLE MOUNTING BRACKET, SPAULDING LIGHTING MODEL#: 4040 OR EQUAL. PROVIDE HEAVY-DUTY CROSSARM FITTING, SPAULDING LIGHTING MODEL#: 4090 OR EQUAL. REFER TO INDIVIDUAL LIGHTING PLANS FOR FLOOD LUMINAIRE TILT ANGLE REQUIREMENTS.	187W LED
S2	HUBBELL (2) FXL-84L-190-5K-W-1-Y-GR OR EQUAL	TWIN 90-DEGREE LED FLOOD LUMINAIRE, WIDE THROW, YOKE MOUNTED ON 10M, GALVANIZED ROUND STRAIGHT STEEL POLE WITH TOP CAP. PROVIDE STEEL POLE MOUNTING BRACKET, SPAULDING LIGHTING MODEL#: 4040 OR EQUAL. PROVIDE HEAVY-DUTY CROSSARM FITTING, SPAULDING LIGHTING MODEL#: 4090 OR EQUAL. REFER TO INDIVIDUAL LIGHTING PLANS FOR FLOOD LUMINAIRE TILT ANGLE REQUIREMENTS.	2-187W LED

LEGEND	
SYMBOL	DESCRIPTION
	SINGLE POLE MOUNTED, ROADWAY, AREA OR FLOOD LUMINAIRE
	TWIN 90-DEGREE POLE MOUNTED, ROADWAY, AREA OR FLOOD LUMINAIRE

STATISTICS						
DESCRIPTION	SYMBOL	AVG	MAX	MIN	MAX/MIN	AVG/MIN
OUTFALL SHAFT	+	79.4 lux	130.3 lux	48.0 lux	2.7:1	1.7:1



LOCATION PLAN

ISSUED FOR PERMIT REVIEW  
NOT FOR CONSTRUCTION

- NOTES:
- SET TYPE "S1" FLOOD LUMINAIRE TILT ANGLE TO 30° TO THE STRUCTURE DECKING.
  - REFER TO MV ENGINEERING STANDARD CR-02-02-SD-EIC-00257 (DC:EI-257-01) FOR POLE LUMINAIRE TERMINATION REQUIREMENTS.
  - REFER TO MV ENGINEERING STANDARD CR-02-02-SD-EIC-00227 (CR: EI-227-02, EI-227-03) FOR TRAFFIC RATED MANHOLE REQUIREMENTS.



Professional Seal

Issue	Date	Desn	Dr'n	Chkd	App'd	Description
P2	NOV. 2017	CSC	CEB	PFB	JNC	ISSUED FOR PERMIT REVIEW
P1	OCT. 2017	TCA	CDK	BJF	HTN	RE-ISSUE OF 90% ELECTRICAL FOR DESIGN REVIEW

GREATER VANCOUVER SEWERAGE AND DRAINAGE DISTRICT

ANNACIS ISLAND WWTP  
NEW OUTFALL SYSTEM  
CONSTRUCTION SERVICES FOR THE OUTFALL

LAYOUT  
OUTFALL SHAFT  
AREA 61-POWER AND LIGHTING PLAN

DESIGN: TCA  
DRAWN: CDK  
CHECKED: BJF  
HTN Approved  
JEN Manager

SCALE: 1:50  
DISTRICT FILE SF-1933  
DRAWING NUMBER A61E5212

SUPERSEDES PRINTS OF THIS DRAWING NUMBER WITH LETTERS PREVIOUS TO P2

2017-10-17 07:15 carterm c:\pdm\carterm\25821585\A61E5212SF1933-PERMIT.dwg xref files:

