GENERAL

1. THE STRUCTURAL DESIGN HAS BEEN COMPLETED IN ACCORDANCE WITH THE GOVERNING BUILDING CODE AND ADDENDA.

2. STRUCTURAL DESIGN CRITERIA:

NANOOSE BAY			2018 BRITISH COLUMBIA BUILDING CODE				
SNOW LOAD CRITERIA			SEISMIC DATA		SEISMIC LOAD CRITERIA		
Ss	2.10 kPa (43.86psf)		Sa(0.2)	1.02	CONCRETE SHEAR WALLS		
Sr	0.40 kPa (8.35 psf)		Sa(0.5)	0.942	Rd	Ro	Ie
Is	ULS	SLS	Sa(1.0)	0.542	-	-	1.5
	1.25	0.9	Sa(2.0)	0.328	WOOD BASED PANEL SHEAR WALLS		
WIND LOAD CRITERIA			Sa(5.0)	0.104	-	-	1.5
q10	0.39 kPa (8.13 psf)		Sa(10.0)	0.037	GEOTECHNICAL CRITERIA		
q50	0.50 kPa (10.41 psf)				SOIL CAPACITY		SITE CLASS
Iw	ULS	SLS	PGA	0.446g	ULS	SLS	
	1.25	0.75	PGV	0.684	100 kPa	75kPa	-

3. ALL CODES AND STANDARDS ARE TO BE AS REFERENCED IN THE THE BUILDING CODE. WHERE STANDARDS ARE NOT REFERENCED, THE LATEST EDITION OF THE BUILDING CODES AND STANDARDS ARE TO BE REFERRED TO.

4. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE APPLICABLE BUILDING CODE INCLUDING ALL ADDENDA, REFERENCED CODES AND FEDERAL AND MUNICIPAL REGULATIONS AND BYLAWS.

5. THE STRUCTURAL DOCUMENTS INCLUDING DIMENSIONING SHALL BE READ IN CONJUNCTION WITH ALL OTHER PROJECT DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE STRUCTURAL ENGINEER FOR CLARIFICATION PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL MAKE ALLOWANCES FOR ITEMS REFERRED TO IN OTHER DOCUMENTS THAT ARE NOT INDICATED IN THE STRUCTURAL DOCUMENTS.

6. REFER TO THE ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE SEPARATIONS, FIRE RATINGS AND ASSEMBLIES AS WELL AS ROOF AND FLOOR ELEVATIONS, SLOPES AND DRAIN LOCATIONS.

7. THE STRUCTURAL DOCUMENTS SHOW THE COMPLETED STRUCTURE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR ANY TEMPORARY BRACING AND SHORING THAT MAY BE REQUIRED DURING CONSTRUCTION.

8. THE CONTRACTOR SHALL RETAIN A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF APPLICABLE IN ACCORDANCE WITH WORK SAFE BC REGULATIONS FOR THE DESIGN AND FIELD REVIEW OF ANY TEMPORARY SHORING, BRACING, SCAFFOLDING OR OTHER TEMPORARY STRUCTURES THAT MAY BE REQUIRED TO COMPLETE CONSTRUCTION. UNDER NO CIRCUMSTANCES ARE THE CONSTRUCTION LOADS IMPOSED BY TEMPORARY STRUCTURES TO EXCEED THE DESIGN LOADING INDICATED IN THE STRUCTURAL DOCUMENTS.

9. THE CONTRACTOR IS RESPONSIBLE FOR THE LAYOUT OF THE STRUCTURE INCLUDING STRUCTURAL COMPONENTS AND ASSEMBLIES.

10. UNDER NO CIRCUMSTANCES ARE THE STRUCTURAL DRAWINGS TO BE SCALED.

FIELD REVIEW

1. THE CONTRACTOR SHALL PROVIDE SORENSEN TRILOGY ENGINEERING LTD WITH A MINIMUM OF 24 HOURS (1 WORKING DAY) NOTICE FOR FIELD REVIEW.

2. FIELD REVIEWS ARE CARRIED OUT IN ORDER TO CONFIRM GENERAL CONFORMANCE WITH THE STRUCTURAL DOCUMENTS. FIELD REVIEWS DO NOT RELIEVE THE CONTRACTOR OR SUB-TRADES OF THEIR RESPONSIBILITY TO COMPLY WITH THE CONTRACT DOCUMENTS.

3. WORK WHICH HAS BEEN REVIEWED AND COMMENTED ON IS NOT NECESSARILY CONSIDERED COMPLETE AND MAY RECEIVE FURTHER COMMENTARY DURING FUTURE REVIEWS.

4. ALL WORK WHICH HAS BEEN DEEMED UNSATISFACTORY BY THE STRUCTURAL ENGINEER DUE TO POOR WORKMANSHIP, FAULTY MATERIALS, ERRORS OR OMISSIONS, NONCOMPLIANCE WITH PROJECT DOCUMENTS, OR OTHER CAUSES SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE STRUCTURAL ENGINEER. COST OF REMEDIATION OF UNSATISFACTORY WORK SHALL BE BORNE BY THE CONTRACTOR.

5. ALL WORK TO BE REVIEWED SHALL BE SUBSTANTIALLY COMPLETE AT TIME OF REVIEW. THE FOLLOWING ITEMS ARE CONSIDERED TO BE THE MINIMUM STRUCTURAL FIELD REVIEWS REQUIRED FOR THE PROJECT:

CONCRETE:
1. REINFORCING STEEL SHALL BE REVIEWED PRIOR TO PLACING CONCRETE.
2. REINFORCING IN CONCRETE WALLS AND COLUMNS SHALL BE REVIEWED PRIOR TO "BUTTONING UP" FORMS.
3. ALL EMBEDS ARE TO BE TIED INTO FINAL POSITION PRIOR TO FIELD REVIEW.
4. A COPY OF THE FIELD REVIEWS PERFORMED BY THE GEOTECHNICAL ENGINEER SHALL BE AVAILABLE ON SITE PRIOR TO SORENSEN TRILOGY ENGINEERING LTD COMMENCING A FIELD REVIEW.

MASONRY:
1. REINFORCING STEEL SHALL BE REVIEWED PRIOR TO PLACING GROUT.
2. VERTICAL AND HORIZONTAL REINFORCING SHALL BE IN PLACE AT THE TIME OF THE REVIEW.
3. ALL EMBEDS ARE TO BE TIED INTO FINAL POSITION PRIOR TO FIELD REVIEW.

STRUCTURAL STEEL:
1. STEEL WORK SHALL BE REVIEWED AFTER ALL MEMBERS HAVE BEEN FABRICATED AND ARE IN THEIR FINAL POSITION WITH CONNECTIONS COMPLETE.
2. A COPY OF THE FIELD REVIEW PERFORMED BY THE SPECIALTY ENGINEER SHALL BE AVAILABLE ON SITE PRIOR TO SORENSEN TRILOGY ENGINEERING LTD COMMENCING A FIELD REVIEW.
4. STEEL DECKING SHALL BE REVIEWED PRIOR TO PLACING CONCRETE OR COVERING.
5. ALL GROUT UNDER BASE PLATES IS TO BE PLACED PRIOR TO FIELD REVIEW.

TIMBER FRAMING
1. FLOOR AND ROOF DIAPHRAGMS SHALL BE REVIEWED PRIOR TO COVERING.
2. A COPY OF THE FIELD REVIEWS PERFORMED BY THE SPECIALTY ENGINEER SHALL BE AVAILABLE ON SITE PRIOR TO SORENSEN TRILOGY ENGINEERING LTD COMMENCING A FIELD REVIEW.
3. TIMBER FRAMING SHALL BE REVIEWED AFTER MECHANICAL AND ELECTRICAL IS SUBSTANTIALLY COMPLETE.

6. FIELD REVIEWS REQUIRED BY SPECIALTY ENGINEERS SHALL BE PROVIDED TO SORENSEN TRILOGY ENGINEERING LTD WITH WRITTEN CONFIRMATION THAT THE WORK IS SUBSTANTIALLY COMPLETE AND IN GENERAL CONFORMANCE WITH THE REVIEWED SHOP DRAWINGS. CONFIRMATION SHALL BE PROVIDED PRIOR TO SORENSEN TRILOGY ENGINEERING LTD PERFORMING ANY FIELD REVIEWS OF THE ASSOCIATED WORK.

7. MATERIAL TESTING REPORTS SHALL BE FORWARDED TO SORENSEN TRILOGY ENGINEERING LTD.

8. IF THE ENGINEER IS NOT PROVIDED WITH THE OPPORTUNITY TO PERFORM THE REQUIRED FIELD REVIEWS AND DOES NOT RECEIVE WRITTEN CONFIRMATIONS FROM THE SPECIALTY ENGINEERS FINAL CERTIFICATION OF THE PROJECT WILL NOT BE ISSUED.

STRUCTURAL SHOP DRAWINGS

1. AS REQUESTED IN THE GENERAL NOTES. THE CONTRACTOR SHALL SUPPLY THE STRUCTURAL ENGINEER WITH PDF SETS OF SHOP DRAWINGS FOR THE ENGINEERS REVIEW PRIOR TO FABRICATION. THE SHOP DRAWINGS SHALL INDICATE DETAILS, MATERIALS AND DESIGN LOADS AND INCLUDE REFERENCE MATERIAL AS SPECIFIED IN SPECIFIC GENERAL NOTE SECTIONS.

2. SHOP DRAWINGS SHALL BE SEALED BY A SPECIALTY ENGINEER REGISTERED IN THE APPLICABLE PROVINCE WHERE SO NOTED IN THE GENERAL NOTES.

3. THE FOLLOWING SUBMISSIONS ARE REQUIRED FOR THIS PROJECT:

CONCRETE MIX DESIGNS *
REINFORCING SHOP DRAWINGS
PREFABRICATED METAL STRUCTURE*

* INDICATES THE REQUIREMENT THAT THE SUBMISSION BE SEALED BY A SPECIALTY ENGINEER.

4. SHOP DRAWINGS WILL BE REVIEWED BY SORENSEN TRILOGY ENGINEERING LTD FOR THE SOLE PURPOSE OF ASCERTAINING GENERAL CONFORMANCE WITH THE PROJECT STRUCTURAL DRAWINGS AND SPECIFICATIONS. THE SHOP DRAWING REVIEW DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR ERRORS OR OMISSIONS IN THE SHOP DRAWINGS OR OF THE RESPONSIBILITY TO MEET ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL CONFIRM ALL QUANTITIES AND DIMENSIONS AND COORDINATE ALL CONSTRUCTION AND THE WORK OF ALL SUB-TRADES.

5. SHOP DRAWINGS WHICH DO NOT HAVE THE REQUIRED SPECIALTY ENGINEER'S SEAL AND SIGNATURE WILL NOT BE REVIEWED.

6. THE SPECIALTY ENGINEER OR HIS REPRESENTATIVE SHALL VISIT THE SITE AND REVIEW THE COMPLETED WORK DESIGNED AND DETAILED ON HIS SHOP DRAWINGS TO SATISFY HIMSELF THAT THE FINISHED COMPONENTS AND ASSEMBLIES ARE IN COMPLIANCE WITH HIS DESIGN AND THE REVIEWED SHOP DRAWINGS. THE SPECIALTY ENGINEER SHALL PROVIDE THE STRUCTURAL ENGINEER WITH A COMPLETED SCHEDULE 'S' FOR THIS WORK ALONG WITH ANY SKETCHES INDICATING FIELD MODIFICATIONS. THESE SKETCHES SHALL BEAR THE SEAL AND SIGNATURE OF THE SPECIALTY ENGINEER.

FOUNDATIONS

1. FOUNDATIONS HAVE BEEN DESIGNED FOR THE FOLLOWING ASSUMED BEARING CAPACITIES (TO BE CONFIRMED BY A GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION.

DESCRIPTION	ULT LIMIT STATES	SPEC LIMIT STATES	SEISMIC LOADING
FOOTINGS	100 kPa (2000 psf)	75 kPa (1500 psf)	ULS UNO

2. ALL FOOTINGS TO BE CENTERED BELOW WALLS AND COLUMNS UNLESS NOTED OTHERWISE.

3. FOOTING ELEVATIONS INDICATED ON THE STRUCTURAL DRAWINGS ARE FOR INFORMATION PURPOSES ONLY AND REPRESENT A MINIMUM DEPTH OF COVER.

4. FOUNDATION BEARING MATERIAL SHALL BE PROTECTED BEFORE AND AFTER CONCRETE PLACEMENT FROM RAIN, FROST, SNOW AND WATER INFILTRATION.

5. CLEAN ALL DAMAGED AND LOOSE MATERIAL BELOW FOOTINGS PRIOR TO FORMING AND PLACING CONCRETE.

6. WHEN REQUIRED BY SITE CONDITIONS AND AS DIRECTED BY THE GEOTECHNICAL ENGINEER, PLACE A GROUND SEAL BELOW FOOTINGS. GROUND SEALS ARE TO BE A MINIMUM OF 50mm (2") OF 10 MPa (1500 psi) CONCRETE UNLESS NOTED OTHERWISE BY THE GEOTECHNICAL ENGINEER.

7. FIRM BEARING DEPTHS FOR FOOTINGS AND FILL WILL BE ESTABLISHED BY THE GEOTECHNICAL ENGINEER AT THE TIME OF CONSTRUCTION. ANY QUERIES REGARDING THE ESTABLISHMENT OF THE DEPTHS SHALL BE DIRECTED TO THE GEOTECHNICAL ENGINEER.

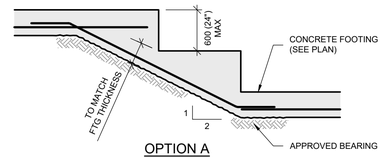
8. VARIABLE SITE CONDITIONS, UNDERGROUND SERVICES AND EXISTING STRUCTURES MAY REQUIRE ADJUSTMENT OF THE FOOTING ELEVATIONS AND/OR FOUNDATION DETAILS. THE CONTRACTOR SHALL MAKE ALLOWANCES FOR MINOR VARIANCES IN HIS BID ACCORDINGLY. THE CONTRACTOR SHALL CONTACT THE GEOTECHNICAL ENGINEER AND STRUCTURAL ENGINEER WHEN SITE CONDITIONS SUBSTANTIALLY DIFFER FROM WHAT IS INDICATED ON THE STRUCTURAL DRAWINGS AND IN THE GEOTECHNICAL REPORT PRIOR TO COMMENCING FOUNDATION WORK.

9. THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION OF FOUNDATIONS WITH UNDERGROUND SERVICES AS INDICATED ON THE CIVIL, MECHANICAL, ELECTRICAL AND ARCHITECTURAL DRAWINGS. FOOTINGS SHALL NOT BE UNDERMINED BY SERVICE TRENCHES, PITS, ETC. CONFLICTS SHALL BE REPORTED TO THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO FORMING AND PLACING CONCRETE.

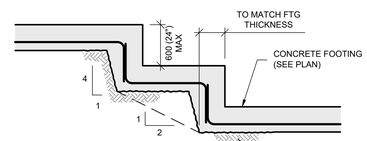
10. MINIMUM COMPACTION OF GRANULAR FILL MATERIAL BELOW ALL FOOTINGS AND SLABS SHALL BE IN ACCORDANCE WITH THE CIVIL DRAWINGS AND CONFIRMED BY THE GEOTECHNICAL ENGINEER. HOWEVER, UNDER NO CIRCUMSTANCES SHALL THE COMPACTION BELOW THE FOOTINGS AND SLABS BE LESS THEN 98% CORRECTED STANDARD PROCTOR DENSITY AND 95% CORRECTED STANDARD PROCTOR DENSITY RESPECTIVELY. MATERIAL TESTING REPORTS FOR BEARING MATERIAL SHALL BE FORWARDED TO SORENSEN TRILOGY ENGINEERING LTD PRIOR TO PLACING CONCRETE.

11. NO FOUNDATIONS SHALL BE POURED PRIOR TO THE REVIEW AND APPROVAL OF THE BEARING MATERIAL BY THE GEOTECHNICAL ENGINEER OF RECORD.

12. MAXIMUM SLOPE OF BEARING MATERIAL FOR STEPPED AND SLOPED FOOTINGS SHALL BE LIMITED TO 2:1 (HORIZONTAL:VERTICAL) UNLESS NOTED OTHERWISE IN WRITING BY THE GEOTECHNICAL ENGINEER. MAXIMUM VERTICAL SLOPE FOR STEPPED FOOTINGS SHALL BE LIMITED TO 1:4 (HORIZONTAL:VERTICAL) WITH STEPS SPACED IN ORDER TO MAINTAIN A 2:1 (HORIZONTAL:VERTICAL) BEARING SLOPE BETWEEN STEPS.



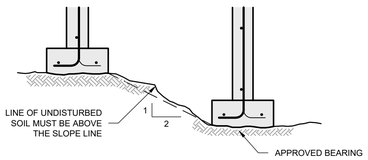
OPTION A



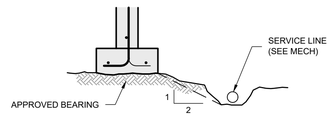
OPTION B

STEPPED FOOTING DETAIL
NTS

13. FOOTINGS AND SERVICES ADJACENT TO NEW OR EXISTING FOOTINGS SHALL BE POSITIONED SUCH THAT THE MAXIMUM SLOPE BETWEEN FOOTINGS AND SERVICES SHALL BE LIMITED TO 2:1 (HORIZONTAL:VERTICAL) UNLESS NOTED OTHERWISE IN WRITING BY THE GEOTECHNICAL ENGINEER.

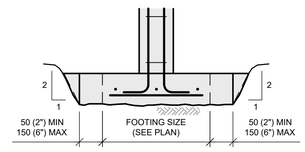


ADJACENT FOOTING DETAIL
NTS



ADJACENT SERVICE TRENCH DETAIL
NTS

14. FORMLESS FOOTINGS ARE ACCEPTABLE PROVIDED THE EXCAVATIONS ARE OVER EXCAVATED BY A MINIMUM OF 50mm (2") AND A MAXIMUM OF 150mm (6") ALONG ALL SIDES. SIDES OF EXCAVATIONS FOR FORMLESS FOOTINGS ARE TO BE SLOPED AT A MAXIMUM SLOPE OF 1:2 (HORIZONTAL:VERTICAL). ALL LOOSE MATERIAL TO BE REMOVED FROM FOOTINGS PRIOR TO POUR.



FORMLESS FOOTING DETAIL
NTS

15. FOUNDATION WALLS SHALL HAVE FLOOR SYSTEMS COMPLETED PRIOR TO BACKFILLING UNLESS NOTED OTHERWISE IN WRITING BY THE STRUCTURAL ENGINEERING.

16. BACKFILL MATERIAL SHALL BE CLEAN, FREE DRAINING GRANULAR MATERIAL. COMPACTION SHALL BE LIMITED TO HAND OPERATED COMPACTION EQUIPMENT WITHIN 1200mm (4'-0") OF THE BACKFILLED WALL UNLESS DIRECTED OTHERWISE BY THE GEOTECHNICAL ENGINEER AND APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.

CAST-IN-PLACE CONCRETE

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF CSA A23.1 AND A23.2.

2. CONCRETE MIXES SHALL CONFORM TO CSA A23.1 AND A23.2 AND SHALL HAVE THE FOLLOWING PROPERTIES UNLESS NOTED OTHERWISE. CEMENT SHALL BE GU - GENERAL USE UNLESS SPECIFIED OTHERWISE.

DESCRIPTION	28 DAY STR	MAX AGG	MAX SLUMP	AIR	EXPOSURE
INTERIOR					
FOOTINGS - TYPICAL	25 MPa (3750 psi)	19mm (3/4")	75mm (3")	-	N
FOOTINGS - CONCRETE SHEAR WALL	30 MPa (4500 psi)	19mm (3/4")	75mm (3")	-	N
WALLS - TYPICAL	25 MPa (3750 psi)	19mm (3/4")	75mm (3")	4-7%	F-2
WALLS - CONCRETE SHEAR WALL	30 MPa (4500 psi)	19mm (3/4")	75mm (3")	4-7%	F-2
COLUMNS - INTERIOR	30 MPa (4500 psi)	19mm (3/4")	75mm (3")	-	N
SUSPENDED SLABS & BEAMS - INT	35 MPa (5250 psi)	19mm (3/4")	75mm (3")	-	N
SUSP. SLABS SUPPORTING VEHICLES	35 MPa (5250 psi)	19mm (3/4")	75mm (3")	5-8%	C1
SLAB ON GRADE - INTERIOR	30 MPa (4500 psi)	19mm (3/4")	75mm (3")	-	N
TOPPING	32 MPa (4800 psi)	10mm (3/8")	75mm (3")	-	N
HOUSEKEEPING PADS	30 MPa (4500 psi)	19mm (3/4")	75mm (3")	4-7%	F-2
ICF WALLS	25 MPa (3750 psi)	10mm (3/8")	150mm (6")	-	-
EXTERIOR					
RETAINING WALLS	25 MPa (3750 psi)	19mm (3/4")	75mm (3")	4-7%	F-2
COLUMNS - EXTERIOR	35 MPa (5250 psi)	19mm (3/4")	75mm (3")	4-7%	F-2
SUSPENDED SLABS & BEAMS - EXT	30 MPa (4500 psi)	19mm (3/4")	75mm (3")	4-7%	F-2
SLAB ON GRADE - EXTERIOR	32 MPa (4800 psi)	19mm (3/4")	75mm (3")	5-8%	C-2

3. CONCRETE TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH CSA A23.1, A23.2 AND A23.3. THE MINIMUM NUMBER OF TESTS PERFORMED SHALL BE AS PER CSA A23.2. ADDITIONAL TESTING SHALL BE PERFORMED AT THE DISCRETION OF THE STRUCTURAL ENGINEER. THE CONTRACTOR SHALL COORDINATE THE TESTING AND PROVIDE THE TESTING AGENCY WITH ADEQUATE NOTICE OF THE REQUIRED TESTS. THE OWNER SHALL EITHER PAY FOR OR PROVIDE AN ALLOWANCE WITHIN THE CONTRACT FOR THE COSTS OF MATERIAL TESTING.

4. THE CONTRACTOR SHALL PROVIDE SUITABLE ON-SITE FACILITIES FOR CURING OF TEST CYLINDERS.

5. ALL CONCRETE CURING SHALL BE IN ACCORDANCE WITH CSA A23.1. SPECIAL PRECAUTIONS SHALL BE TAKEN FOR PLACING AND CURING CONCRETE ABOVE 30°C (85°F) AND BELOW 5°C (40°F).

6. CHAMFER ALL EXPOSED EDGES OF CONCRETE WITH A 19mm (¾") CHAMFER UNLESS NOTED OTHERWISE IN THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

7. CONCRETE FINISHES SHALL BE IN ACCORDANCE WITH CSA A23.1 AND AS FOLLOWS UNLESS NOTED OTHERWISE IN THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

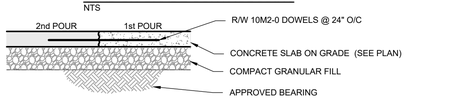
INTERIOR SLABS	TROWEL FINISH
EXTERIOR SLABS	BROOM FINISH
SLABS TO RECEIVE CONCRETE TOPPING	ROUGH BROOM FINISH
WALLS	FILL ALL DEFECTS LARGER THAN 25mm (1") DIAMETER AND GRIND RIDGES FLUSH WITH SURROUNDING SURFACES
SUSPENDED SLABS AND BEAMS	FILL ALL DEFECTS LARGER THAN 19mm (¾") DIAMETER AND GRIND RIDGES FLUSH WITH SURROUNDING SURFACES
CONSTRUCTION JOINTS	ROUGH WITH 6mm (¼") AMPLITUDE

8. ALL REINFORCING STEEL SHALL HAVE THE FOLLOWING CLEAR COVER DISTANCES UNLESS NOTED OTHERWISE. REFER TO THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR LOCATIONS OF FIRE SEPARATIONS AND FIRE RESISTANCE RATINGS (FRR).

DESCRIPTION	0-1 HR FRR	2 HR FRR	3 HR FRR
SURFACES PLACED IN CONTACT WITH SOIL OR FILL	75mm (3")	75mm (3")	75mm (3")
FORMED SURFACES EXPOSED TO GROUND OR WEATHER	50mm (2")	50mm (2")	50mm (2")
WALLS	40mm (1 1/2")	40mm (1 1/2")	40mm (1 1/2")
COLUMNS	40mm (1 1/2")	50mm (2")	50mm (2")
BEAMS	20mm (3/4")	25mm (1")	40mm (1 1/2")
SUSPENDED SLABS	20mm (3/4")	25mm (1")	35mm (1 3/8")

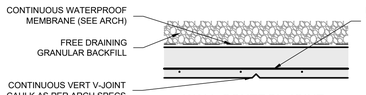
9. CONTROL JOINTS SHALL BE PROVIDED IN BOTH DIRECTIONS IN ALL SLAB-ON-GRADE LOCATIONS AT A MAXIMUM SPACING OF 4500mm (15'-0") FOR UNREINFORCED SLABS AND 6000mm (20'-0") FOR REINFORCED SLABS UNLESS NOTED OTHERWISE ON THE STRUCTURAL AND/OR ARCHITECTURAL DRAWINGS.

SLAB ON GRADE CONTROL JOINT
NTS

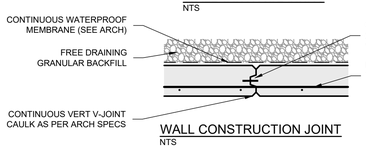


SLAB ON GRADE CONSTRUCTION JOINT
NTS

10. CONTROL JOINTS IN WALLS SHALL BE PROVIDED AT A MAXIMUM SPACING OF 9000mm (30'-0") UNLESS INDICATED OTHERWISE IN THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.



WALL CONTROL JOINT
NTS



WALL CONSTRUCTION JOINT
NTS

11. JOINT FILLER SHALL BE INSTALLED IN EXPANSION JOINTS AND CONSTRUCTION JOINTS UNLESS INDICATED OTHERWISE IN THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

12. WATERSTOPS SHALL BE INSTALLED WHERE INDICATED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. WATERSTOPS SHALL BE RIGIDLY TIED IN PLACE WITHOUT DISTORTION OR PUNCTURE. REINFORCING IS NOT TO BE DISPLACED DURING WATERSTOP PLACEMENT.

13. EMBEDDED PLATES AND ANCHOR BOLTS FOR STRUCTURAL STEEL SHALL BE SECURELY TIED OR FASTENED INTO PLACE PRIOR TO POURING CONCRETE. ALL ANCHOR BOLTS FOR MEMBERS OTHER THAN STANDARD TIMBER WALL FRAMING SHALL BE INSTALLED USING A TEMPLATE. "WET DOWELING" OF ANCHOR BOLTS AND EMBEDDED PLATES IS NOT PERMITTED.

14. INSTALL EMBEDDED DOVETAIL ANCHOR SLOTS IN CAST-IN-PLACE CONCRETE FOR DOVETAIL MASONRY ANCHORS @ 400mm (16") WHERE CONCRETE BLOCK WALLS MEET CONCRETE WALLS OR COLUMNS UNLESS NOTED OTHERWISE.

15. FORMWORK SHALL REMAIN IN PLACE UNTIL THE FOLLOWING CRITERIA HAS BEEN MET:

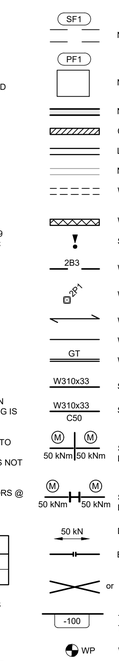
DESCRIPTION	COMP STR	MIN TIME
STRUCTURAL CONCRETE WALLS AND COLUMNS	8 MPa (1200 psi)	3 DAYS
ARCHITECTURAL CONCRETE WALLS AND COLUMNS	10 MPa (1500 psi)	3 DAYS

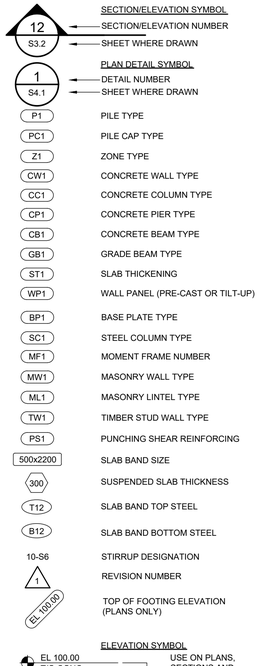
16. CONCRETE STRENGTHS SHALL BE CONFIRMED BY TEST CYLINDERS PRIOR TO STRIPPING FORMWORK UNLESS ALTERNATE MEANS HAVE BEEN APPROVED BY THE STRUCTURAL ENGINEER.

17. SHORING FOR SLABS AND BEAMS SHALL REMAIN IN PLACE FOR A MINIMUM OF 21 DAYS AND CONCRETE HAS ACHEIVED THE DESIGN STRENGTH.

18. SHORING AND RE-SHORING SHALL BE DESIGNED BY A SPECIALTY ENGINEER REGISTERED IN THE PROVINCE OF APPLICABLE. FOR MULTI-STOREY SLAB CONSTRUCTION, SHORING SHALL BE PROVIDED FOR A MINIMUM OF THREE LEVELS BELOW THE SLAB BEING CONSTRUCTED. SHORING DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW OF THE EFFECT SHORING MAY HAVE ON THE BUILDING STRUCTURE ONLY.

LEGEND





KOERS & ASSOCIATES ENGINEERING LTD.
Consulting Engineers
P.O. Box 790, 194 Memorial Ave. Parksville, BC V9P 2G8
Ph: 250-248-3151 Fax: 250-248-5362
www.koers-eng.com

sorensen TRILOGY
STRUCTURAL ENGINEERING SOLUTIONS
NANAIMO (250) 585-1360 VICTORIA (778) 265-7362
COURTENAY (778) 225-0594
www.sorensentrilogy.ca STE #20-159

RECORD OF REVISIONS

REV	DATE	BY	ENG	DESCRIPTION
D	23JUN23	KMF	KT	TENDER
C	03MAY23	KMF	KT	95% COORDINATION
B	28MAR23	KMF	KT	75% COORDINATION
A	02MAR23	KMF	KT	COORDINATION
ISS	DATE	BY	ENG	DESCRIPTION

RECORD OF ISSUE

NOT FOR CONSTRUCTION

2023-06-23

SEAL



PROJECT NO.	
DRAWN	KMF
DESIGNED	DH
CHECKED	KT
APPROVED	–
DATE	MARCH 01, 2023
SCALE	AS NOTED

CLIENT

REGIONAL DISTRICT OF NANAIMO

PROJECT

NANOOSE BAY
PUMP STATION No. 6
UPGRADE
AND SANITARY FORCEMAIN
REPLACEMENT

TITLE

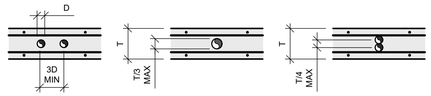
STRUCTURAL
GENERAL NOTES

DRAWING No.	REV.	SHEET
NBPS6–S–001	D	8/28

SUSPENDED CONCRETE SLABS

1. SUSPENDED SLABS SHALL COMPLY TO THE REQUIREMENTS OF CSA-S413.

2. CONDUIT PLACEMENT SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS.
3. CENTER TO CENTER SPACING OF CONDUIT AND PIPING IN SUSPENDED SLABS SHALL BE NO LESS THEN THREE DIAMETERS.
4. LOCATE CONDUIT AND PIPING BETWEEN TOP AND BOTTOM REINFORCING LAYERS
5. MAXIMUM ALLOWABLE OUTSIDE DIAMETER OF CONDUIT OR PIPE FOR A SINGLE LAYER SHALL BE LESS THEN ⅓ CONCRETE THICKNESS
6. MAXIMUM ALLOWABLE OUTSIDE DIAMETER OF CONDUIT OR PIPE FOR A DOUBLE LAYER SHALL BE LESS THEN ¼ CONCRETE THICKNESS
7. TRIPLE LAYERS OF CONDUIT OR PIPE SHALL NOT BE PERMITTED



8. FOR OPENINGS 300mm (12") OR LESS THE REINFORCING SHALL BE SPREAD TO EACH SIDE OF THE OPENING. REINFORCING SHALL NOT BE CUT.

9. SUSPENDED SLABS SHALL BE CAMBERED 3mm (⅛") FOR EACH 2400mm (8'-0") OF THE SPAN UNLESS INDICATED OTHERWISE ON THE STRUCTURAL DRAWINGS.

10. MINIMUM BOTTOM REINFORCING IN EACH DIRECTION SHALL IN ACCORDANCE WITH THE FOLLOWING UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS:

SLAB THICKNESS	REINFORCING
125mm (5")	10M @ 400 (16")
150mm (6")	10M @ 325 (13")
175mm (7")	10M @ 275 (9")
200mm (8")	15M @ 450 (18")
225mm (9")	15M @ 425 (17")
250mm (10")	15M @ 400 (16")
275mm (11")	15M @ 350 (14")
300mm (12")	15M @ 325 (13")

11. THE CONTRACTOR SHALL FABRICATE AND ERECT FORMWORK AND FALSEWORK IN ACCORDANCE WITH CSA S269.1. WHERE REQUIRED BY WCB REGULATIONS THE CONTRACTOR SHALL RETAIN A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF APPLICABLE TO DESIGN AND SEAL THE FORMWORK AND/OR FALSEWORK DRAWINGS. THE ENGINEER SHALL VISIT THE SITE AND REVIEW THE COMPLETED WORK DESIGNED AND DETAILED ON HIS SHOP DRAWINGS TO SATISFY HIMSELF THAT THE FINISHED COMPONENTS AND ASSEMBLIES ARE IN COMPLIANCE WITH HIS/ HER DESIGN PRIOR TO PLACING CONCRETE.

12. FALSEWORK SHALL REMAIN IN PLACE UNTIL THE FOLLOWING CRITERIA HAS BEEN MET:

DESCRIPTION	COMP STR	MIN TIME
BUILDING SUSPENDED SLAB AND BEAMS	GREATER OF 18MPa or 75% OF 28 DAYS	7 DAYS
PARKING SUSPENDED SLAB AND BEAMS	75% OF 28 DAYS	21 DAYS

13. CONCRETE STRENGTHS SHALL BE CONFIRMED BY TEST CYLINDERS PRIOR TO STRIPPING FORMWORK UNLESS ALTERNATE MEANS HAVE BEEN APPROVED BY THE STRUCTURAL ENGINEER.

14. SHORING AND RE-SHORING SHALL BE DESIGNED BY A SPECIALTY ENGINEER REGISTERED IN THE APPLICABLE PROVINCE. FOR MULTI-STOREY SLAB CONSTRUCTION SHORING SHALL BE PROVIDED FOR A MINIMUM OF THREE LEVELS BELOW THE SLAB BEING CONSTRUCTED. SHORING DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW OF THE EFFECT SHORING MAY HAVE ON THE BUILDING STRUCTURE ONLY

CONCRETE COLD WEATHER REQUIREMENTS

1. THE REQUIREMENTS OF CSA A23.1 AND THE FOLLOWING SHALL BE MET WHEN PLACING CONCRETE DURING COLD WEATHER BELOW 5°C (40°F):

A. FORCASTED TEMPERATURE NOT BELOW 2°C (35°F).
   1. MIXING WATER SHALL BE HEATED TO MAINTAIN CONCRETE TEMPERATURE OF 10°C (50°F) AT POINT OF POUR.
   2. CONCRETE SHALL NOT BE PLACED ON OR AGAINST ANY SURFACE THAT IS BELOW 5°C (40°F).
   3. THE CONTRACTOR SHALL BE PREPARED TO COVER SLABS IN THE EVENT OF AN UNEXPECTED DROP IN AIR TEMPERATURE.
   4. THE CONCRETE TEMPERATURE SHALL BE MAINTAINED ABOVE 10°C (50°F) FOR AT LEAST 7 DAYS OR UNTIL THE CONCRETE REACHES 70% OF DESIGN STRENGTH.

B. FORCASTED AIR TEMPERATURE BETWEEN 2°C (35°F) AND MINUS 4°C (25°F)
   1. FORMS AND REINFORCING STEEL SHALL BE FREE FROM ICE AND SNOW.
   2. MIXING WATER SHALL BE HEATED TO MAINTAIN CONCRETE TEMPERATURE OF 10°C (50°F) AT POINT OF POUR.
   3. CONCRETE SHALL NOT BE PLACED ON OR AGAINST ANY SURFACE THAT IS BELOW 5°C (40°F).
   4. SLABS SHALL BE COVERED IN CANVAS OR SIMILAR MATERIAL PLACED A FEW INCHES OFF THE CONCRETE SURFACE.
   5. DURING WINDY WEATHER THE STOREY BELOW THE POUR LOCATIONS SHALL BE ENCLOSED.
   6. PROTECTION SHALL BE MAINTAINED FOR A MINIMUM OF 3 DAYS.
   7. THE CONCRETE TEMPERATURE SHALL BE MAINTAINED ABOVE 10°C (50°F) FOR AT LEAST 7 DAYS. IN ADDITION, THE CONCRETE SHALL BE KEPT ABOVE FREEZING UNTIL THE CONCRETE REACHES 70% OF DESIGN STRENGTH.

C. FORCASTED AIR TEMPERATURE BELOW MINUS 5°C (23°F)
   1. FORMS AND REINFORCING STEEL SHALL BE FREE FROM ICE AND SNOW.
   2. MIXING WATER SHALL BE HEATED TO MAINTAIN CONCRETE TEMPERATURE OF 10°C (50°F) AT POINT OF POUR.
   3. CONCRETE SHALL NOT BE PLACED ON OR AGAINST ANY SURFACE THAT IS BELOW 5°C (40°F).
   4. SLABS SHALL BE COVERED IN CANVAS OR SIMILAR MATERIAL PLACED A FEW INCHES OFF THE CONCRETE SURFACE.
   5. DURING WINDY WEATHER THE STOREY BELOW THE POUR LOCATIONS SHALL BE ENCLOSED AND MAINTAINED FOR A MINIMUM OF 3 DAYS AFTER THE POUR.
   6. PROTECTION SHALL BE MAINTAINED FOR A MINIMUM OF 3 DAYS.
   7. THE CONCRETE TEMPERATURE AT ALL SURFACES SHALL BE MAINTAINED ABOVE 20°C (68°F) FOR AT LEAST 3 DAYS OR ABOVE 10°C (50°F) FOR AT LEAST 7 DAYS. IN ADDITION, THE CONCRETE SHALL BE KEPT ABOVE FREEZING UNTIL THE CONCRETE REACHES 70% OF DESIGN STRENGTH.
   8. ENCLOSURES MUST BE CONSTRUCTED SO THAT THE AIR CAN CIRCULATE OUTSIDE THE OUTER EDGES OF MEMBERS.
   9. STOREY BELOW SHALL BE ENCLOSED AND ARTIFICIAL HEAT PROVIDED. HEATING TO BE STARTED AT LEAST THREE HOURS PRIOR TO POURING AND MAINTAINED FOR MINIMUM OF THREE DAYS THEREAFTER.

2. WHEN POURING CONCRETE TOPPING ON METAL DECK USE THE PRECAUTIONS SPECIFIED IN ITEM C ABOVE.

CONCRETE HOT WEATHER REQUIREMENTS

1. THE REQUIREMENTS OF CSA A23.1 SHALL BE MET WHEN PLACING CONCRETE DURING HOT WEATHER ABOVE 30°C (°F)

MECHANICAL & ADHESIVE ANCHORS

1. ALL ANCHORS ARE TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.

2. ALL ANCHORS ARE TO BE THE ADHESIVE TYPE. MECHANICAL ANCHORS ARE ONLY TO BE USED WHEN SPECIFICALLY CALLED UP ON THE DRAWINGS. SUBSTITUTIONS MUST BE APPROVED BY THE PROJECT ENGINEER PRIOR TO USE.

3. UNLESS NOTED OTHERWISE, ADHESIVE ANCHORS SHALL BE HILTI 'HAS' ROD. REFER TO DRAWINGS FOR ANCHOR LOCATIONS, SIZES, CENTRES AND EMBEDMENT LENGTH. USE HILTI HIT-HY200 OR HILTI HIT ICE ADHESIVE AS NOTED BELOW.
   A. USE HILTI HIT-HY200 MAX WHEN:
      1. A QUICK CURE IS REQUIRED
      2. CONDITIONS ARE DRY
      3. HOLES ARE HAMMER DRILLED
      4. HOLES ARE NOT OVER-SIZED
      5. BASE MATERIAL TEMPERATURE IS ABOVE -10° CELSIUS AND BELOW 40° CELSIUS.
   B. WHEN THE BASE MATERIAL TEMPERATURE IS ABOVE -23° CELSIUS AND BELOW 30° CELSIUS, HILTI HIT-ICE MAY BE USED IN NON-SEISMIC APPLICATIONS W/ THE APPROVAL OF THE ENGINEER.

4. HOLES FOR ADHESIVE ANCHORS SHALL BE CLEANED OUT WITH HIGH PRESSURE AIR AND IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

5. REFER TO DRAWINGS FOR MECHANICAL ANCHOR LOCATIONS, SIZES, CENTRES AND EMBEDMENT LENGTH.

6. INSTALLERS OF HILTI PRODUCTS SHALL HAVE RECEIVED TRAINING BY HILTI (CANADA) CORP. IN THE USE OF THE SPECIFIED PRODUCTS. THE GENERAL CONTRACTOR SHALL PROVIDE THE DESIGN ENGINEER WITH A LETTER STATING THAT THIS TRAINING HAS BEEN COMPLETED.

7. 10% OF ALL ADHESIVE ANCHORS ARE TO BE LOAD TESTED. IF ANY TESTS FAIL THEN ALL ADHESIVE ANCHORS ARE TO BE TESTED. ANY FAILING CONNECTIONS ARE TO BE RE-INSTALLED.

REINFORCING STEEL

1. REINFORCING STEEL SHALL BE TO THE FOLLOWING STANDARDS UNLESS NOTED OTHERWISE:

DESCRIPTION	STANDARD	GRADE
WELDED WIRE MESH	CSA G30.5	400
10M REINFORCING BAR AND LARGER	CSA G30.18R	400R
REINFORCING TO BE WELDED	CSA G30.18W	400W
PRE-STRESSING STRANDS	CSA G279	1870

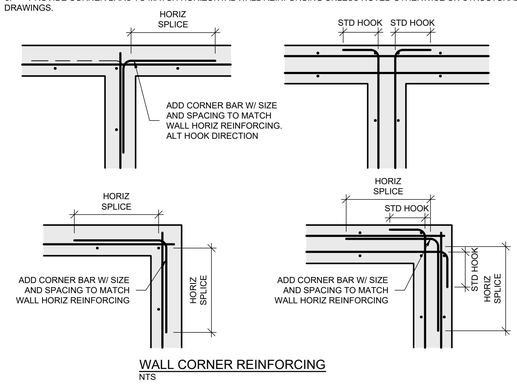
2. WHEN REQUESTED BY THE STRUCTURAL ENGINEER MILL CERTIFICATES SHALL BE SUPPLIED FOR ALL WELDABLE REINFORCING STEEL USED IN CONCRETE SHEAR WALLS AND CONCRETE FRAMES.

3. WELDING OF REINFORCING STEEL SHALL CONFORM TO CSA W186 "WELDING OF REINFORCING BARS IN REINFORCED CONCRETE CONSTRUCTION". WELDING OF REINFORCING SHALL BE ALLOWED ONLY AS NOTED ON THE PLANS. WHERE WELDING OF REINFORCING IS REQUIRED MILL CERTIFICATES FOR WELDABLE REINFORCING SHALL BE PROVIDED PRIOR TO WELDING. WRITTEN PERMISSION FROM THE STRUCTURAL ENGINEER IS REQUIRED FOR ANY WELDING NOT SPECIFIED FOR IN THE STRUCTURAL DRAWINGS.

4. ALL REINFORCING BARS SHALL BE TIED SECURELY IN PLACE TO PREVENT DISPLACEMENT.

5. DOWELS ARE TO BE TIED IN PLACE PRIOR TO PLACING CONCRETE. "WET DOWELING" OF ANY REINFORCING STEEL IS NOT PERMITTED WITHOUT THE WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.

6. PROVIDE CORNER BARS TO MATCH HORIZONTAL WALL REINFORCING UNLESS NOTED OTHERWISE ON STRUCTURAL DRAWINGS.



WALL CORNER REINFORCING
NTS

7. WHERE CONCRETE SURFACES ARE TO BE EXPOSED, ONLY NON-CORROSIVE TYPE REINFORCING CHAIRS SHALL BE USED TO SUPPORT REINFORCING STEEL.

8. LAP LENGTHS AND EMBEDMENTS FOR REINFORCING STEEL SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS:

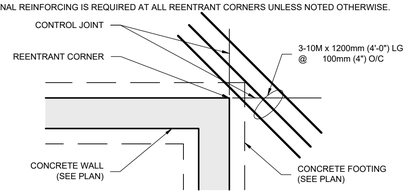
CONCRETE STRENGTH	BAR SIZE					
	10M	15M	20M	25M	30M	35M
	TENSION	TENSION	TENSION	TENSION	TENSION	TENSION
20 MPa	420 (16.5")	630 (24.8")	840 (33.0")	1310 (51.6")	1570 (61.8")	1835 (72.2")
25 MPa	375 (14.8")	565 (22.2")	750 (29.5")	1170 (46.1")	1405 (55.3")	1640 (64.6")
30 MPa	345 (13.6")	515 (20.3")	690 (27.2")	1070 (42.1")	1285 (50.6")	1500 (59.0")
35 MPa	320 (12.6")	475 (18.7")	635 (25.0")	990 (39.0")	1190 (46.9")	1385 (54.5")

9. FOR HORIZONTAL BARS WITH MORE THAN 12" (300) CONCRETE COVER BELOW THE BAR, MULTIPLY LENGTHS NOTED ABOVE BY (1.3) (DOES NOT INCLUDE HORIZONTAL BARS IN WALLS).

10. THE SPLICE TYPE FOR COLUMNS SHALL BE A COMPRESSION SPLICE UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS. ALL OTHER MEMBERS SHALL USE TENSION SPLICES.

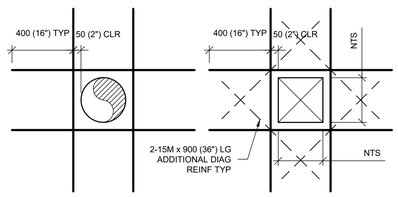
11. HOOKS ON ALL TIES SHALL BE BENT AT LEAST 135° AND HAVE A MINIMUM LEG OF 12 TIMES THE BAR DIAMETER UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.

12. DIAGONAL REINFORCING IS REQUIRED AT ALL REENTRANT CORNERS UNLESS NOTED OTHERWISE.



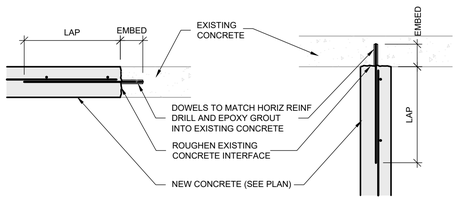
REENTRANT CORNER REINFORCING
NTS

13. PROVIDE 2-15M EACH SIDE OF OPENINGS EXTENDED 450mm (18") BEYOND EDGE OF OPENING UNLESS NOTED OTHERWISE. RECTANGULAR OPENINGS TO HAVE ADDITIONAL 2-15M x 900mm (3'-0") LG DIAGONALS AT ALL CORNERS UNLESS NOTED OTHERWISE.



REINFORCING AROUND OPENINGS IN SLABS AND WALLS
NTS

14. DOWELS TO MATCH REINFORCING FOR NEW CONSTRUCTION SHALL BE EPOXY GROUTED INTO EXISTING CONCRETE, MINIMUM EMBED 150mm (6") UNLESS NOTED OTHERWISE.



NEW TO EXISTING CONCRETE CONNECTIONS
NTS

MISCELLANEOUS METAL FABRICATIONS

1. MISCELLANEOUS METAL FABRICATIONS INCLUDE SUCH ITEMS AS METAL STAIRS AND LADDERS, ANGLE LINTELS, PIPE RAILINGS, CORNER GUARDS, BOLLARDS, TRENCH COVERS AND FRAMES, CONNECTORS FOR CONNECTIONS OF OTHER MATERIALS, ETC.

2. DESIGN OF MISCELLANEOUS METAL FABRICATIONS IS TO BE IN ACCORDANCE WITH CSA-S16.1.

3. DESIGN AND FABRICATE METAL STAIRS TO THE LATEST EDITION OF THE APPLICABLE BUILDING CODE AND THE ARCHITECTURAL AND STRUCTURAL DRAWINGS. FABRICATION AND INSTALLATION TO BE IN ACCORDANCE WITH THE METAL STAIR MANUAL AMP-510 BY THE NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS.

4. ALL WELDING SHALL BE IN ACCORDANCE WITH CSA W59-03 AND SHALL BE PERFORMED BY FABRICATORS "FULLY APPROVED" BY THE CANADIAN WELDING BUREAU UNDER CSA W55-3. FABRICATING SHOPS TO HAVE A MINIMUM DIVISION 2.1 CERTIFICATION BY THE CANADIAN WELDING BUREAU TO THE REQUIREMENTS OF CSA W47.1 AND CSA 255.3 FOR RESISTANCE WELDING OF STRUCTURAL COMPONENTS. THE FABRICATOR SHALL SUBMIT PROOF OF CERTIFICATION TO THE STRUCTURAL ENGINEER PRIOR TO COMMENCING FABRICATION.

5. MATERIALS SUPPLIED IN MISCELLANEOUS METAL FABRICATIONS ARE TO BE IN ACCORDANCE WITH THE FOLLOWING STANDARDS:

DESCRIPTION	STANDARD	GRADE
STEEL SECTIONS	CSA G40.21	350W
STEEL PLATE	CSA G40.21	260W
STEEL PIPE	ASTM A53/A53M	300W
METAL BAR GRATING	ANSI/NAAMM MBG 531	-
WELDING MATERIAL	CSA W59	-
FILLER METALS AND ALLIED MATERIALS FOR METAL ARC WELDING	CSA W48	-
ANCHOR BOLTS	ASTM A307	F1554-GR-36
ERECTION BOLTS	ASTM A325	A325
GROUT	-	15 MPa @ 24 HRS

6. THE CONTRACTOR AND SUB-TRADES SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS ON SITE PRIOR TO COMMENCING FABRICATION.

7. THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACING DURING CONSTRUCTION. THE BRACING SHALL BE DESIGNED, INSTALLED AND MAINTAINED BY THE CONTRACTOR. THE BRACING SHALL BE REMOVED ONLY AFTER THE INSTALLATION IN COMPLETE.

8. FABRICATE WORK SQUARE, PLUMB, STRAIGHT AND ACCURATE TO THE REQUIRED SIZES WITH JOINTS CLOSELY FITTED AND PROPERLY SECURED. WHERE POSSIBLE, SHOP FIT AND ASSEMBLE READY FOR ERECTION. EXPOSED WELDS ARE TO BE CONTINUOUS FOR THE FULL LENGTH OF THE JOINT AND GROUND SMOOTH AND FLUSH UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS. USE SELF-TAPPING, SHAKE-PROOF, FLAT HEADED SCREWS ON ITEMS REQUIRING ASSEMBLY WITH SCREWS UNLESS NOTED OTHERWISE.

9. ALL STEEL WORK SHALL BE SHOP PRIMED EXCEPT PARTS TO BE EMBEDDED INTO CONCRETE OR GALVANIZED UNLESS NOTED OTHERWISE. PRIMING SHALL BE IN ACCORDANCE WITH CISC/CPMA-1-73a "QUICK DRYING PRIMER" WHEN NO TOP COAT IS REQUIRED AND IN ACCORDANCE WITH CISC/CPMA-2-75 WHEN TOP COAT IS SPECIFIED. WHEN A TOP COAT IS SPECIFIED THE PRIMER SHALL BE SELECTED TO ENSURE COMPATIBILITY WITH THE SPECIFIED SYSTEM.

10. HOT DIP GALVANIZE ALL EXTERIOR STEEL WORK AND STEEL WHICH PROTRUDES THROUGH THE BUILDING ENVELOPE UNLESS NOTED OTHERWISE. ITEMS SPECIFIED TO BE GALVANIZED SHALL BE HOT DIP GALVANIZED TO ASTM A-123-08 WITH A MINIMUM ZINC COATING OF 600g/sqm. FIELD TOUCHUP ALL ABRASIONS, SCRATCHES, WELDS AND BOLTS.

11. ISOLATE ALUMINUM SECTIONS FROM DISSIMILAR METALS EXCEPT STAINLESS STEEL, ZINC OR WHITE BRONZE WITH BITUMINOUS PAINT. ALL FASTENERS TO BE COMPATIBLE WITH MATERIALS THROUGH WHICH THEY PASS.

12. DELIVER, STORE, HANDLE AND PROTECT MATERIALS FROM DAMAGE. INSTALL PLUMB AND TRUE IN LOCATIONS SPECIFIED ON THE DRAWINGS. SECURELY FASTEN TO BUILDING STRUCTURE AS DETAILED.

13. THE STEEL FABRICATOR SHALL SUPPLY THE STRUCTURAL ENGINEER WITH PDF SETS OF SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION UNLESS NOTED OTHERWISE BY THE STRUCTURAL ENGINEER IN WRITING. SHOP DRAWINGS SHALL INDICATE ALL DETAILS, MATERIALS, SPECIFICATIONS AND DESIGN LOADS AND BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF APPLICABLE. SHOP DRAWINGS SHALL BE COORDINATED WITH THE WORK OF OTHER DISCIPLINES SUCH AS BUT NOT LIMITED TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL. THE SPECIALITY ENGINEER OR HIS REPRESENTATIVE SHALL INSPECT THE ERECTED STEEL WORK TO VERIFY CORRECT INSTALLATION AND PROVIDE WRITTEN CONFIRMATION OF SUCH TO THE STRUCTURAL ENGINEER PRIOR TO THE STRUCTURAL ENGINEER CERTIFYING THE PROJECT AS SUBSTANTIALLY COMPLETE.

14. A COPY OF THE FABRICATOR'S CANADIAN WELDING BUREAU CERTIFICATES SHALL BE INCLUDED WITH THE SHOP DRAWING SUBMISSION.

KOERS & ASSOCIATES ENGINEERING LTD.
Consulting Engineers
P.O. Box 790, 194 Memorial Ave. Parksville, BC V9P 2G8
Ph: 250-248-3151 Fax: 250-248-5362
www.koers-eng.com

sorensen TRILOGY
STRUCTURAL ENGINEERING SOLUTIONS
NANAIMO (250) 585-1360 VICTORIA (778) 265-7362
COURTENAY (778) 225-0594
www.sorensentrilogy.ca STE #20-159

RECORD OF REVISIONS

REV	DATE	BY	ENG	DESCRIPTION

NOT FOR CONSTRUCTION

2023-06-23

ISS	DATE	BY	ENG	DESCRIPTION
D	23JUN23	KMF	KT	TENDER
C	03MAY23	KMF	KT	95% COORDINATION
B	28MAR23	KMF	KT	75% COORDINATION
A	02MAR23	KMF	KT	COORDINATION

RECORD OF ISSUE

SEAL

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA K. TRAN
EGBC Permit # 1001245
2023-06-23

PROJECT NO.	
DRAWN	KMF
DESIGNED	DH
CHECKED	KT
APPROVED	–
DATE	MARCH 01, 2023
SCALE	AS NOTED

CLIENT

REGIONAL DISTRICT OF NANAIMO

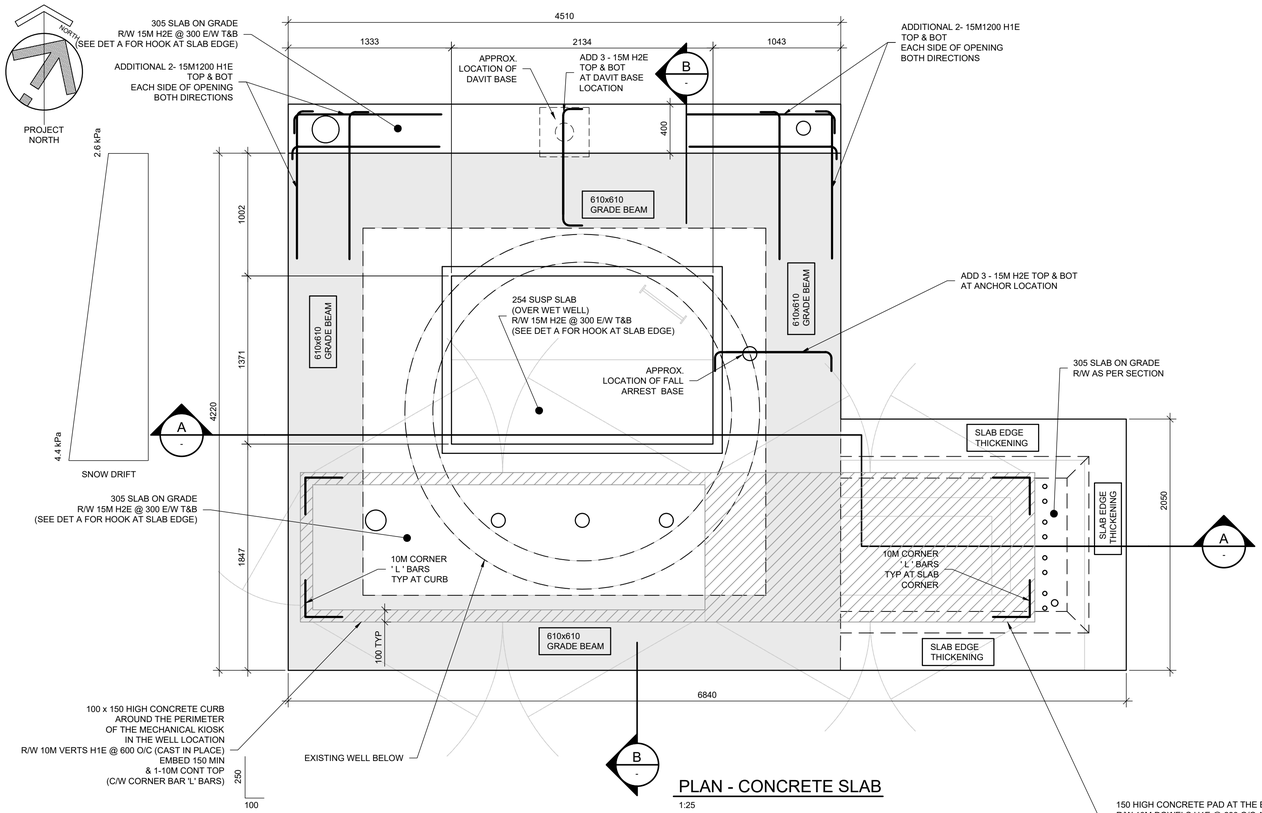
PROJECT

NANOOSE BAY
PUMP STATION No. 6
UPGRADE
AND SANITARY FORCEMAIN
REPLACEMENT

TITLE

STRUCTURAL
GENERAL NOTES

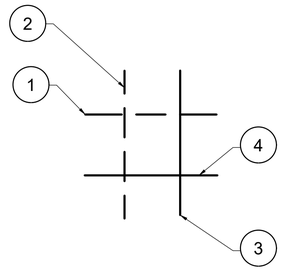
DRAWING No.	REV.	SHEET
NBPS6–S–002	D	9/28



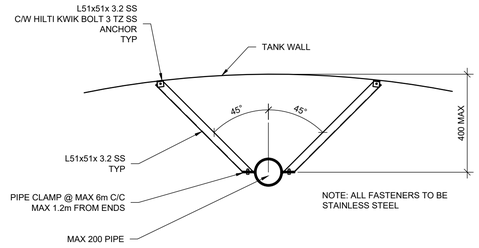
PLAN - CONCRETE SLAB

1:25

SPECIFIED SLAB LOADING	
LOADING CONDITION	LOADING
DEAD LOAD = CONC SELF WEIGHT + 1 kPa	1.65 kPa (35 psf)
LIVE LOAD	4.8 kPa
SNOW LOAD	2.6 kPa + DRIFT

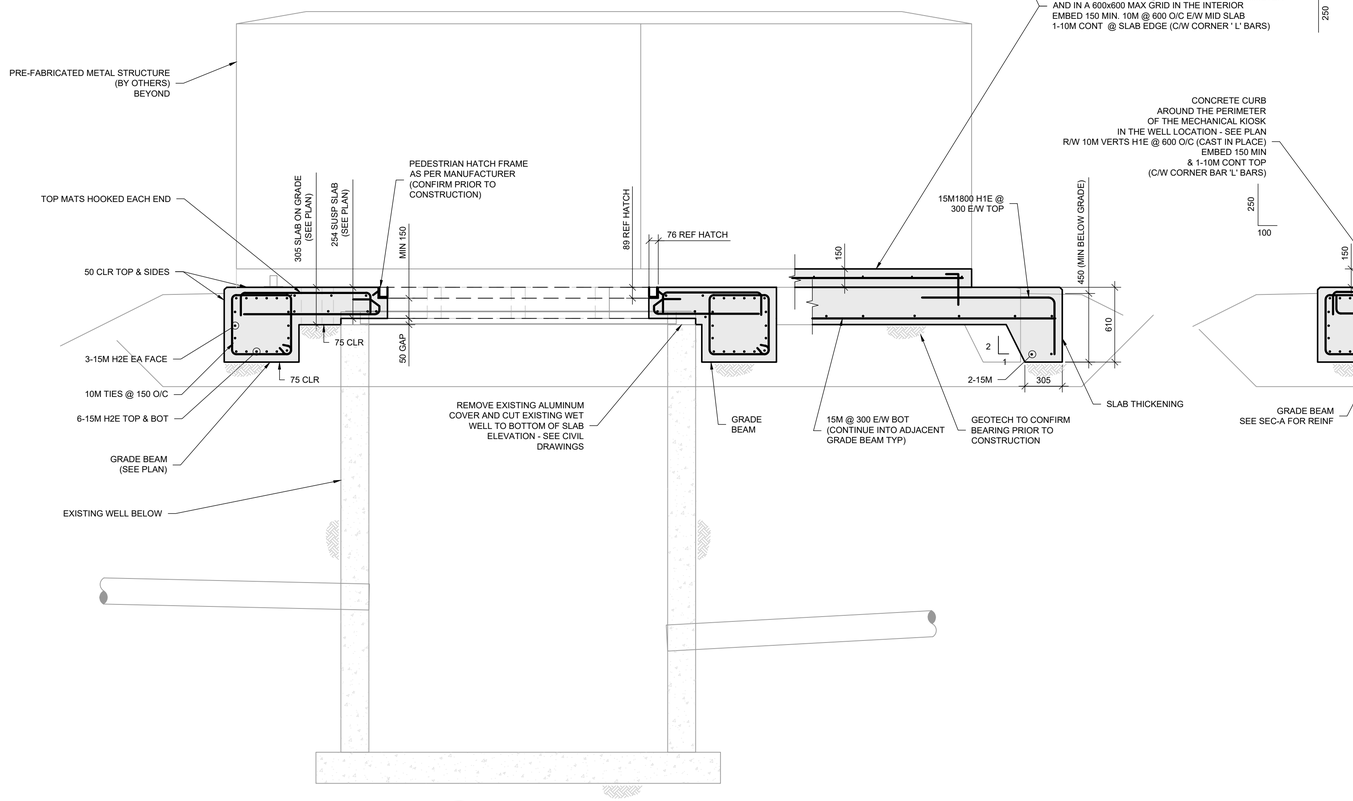


REINF PLACEMENT ORDER



PLAN - PIPE LATERAL RESTRAINT DETAIL

N.T.S.



A SECTION

1:25

B SECTION

1:25

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Parksville, BC V9P 2G8 www.koers-eng.com Fax: 250-248-5362

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REGIONAL DISTRICT OF NANAIMO

PROJECT

NANOOSE BAY
PUMP STATION No. 6
UPGRADE
AND SANITARY FORCEMAIN
REPLACEMENT

TITLE

STRUCTURAL
PLAN & SECTIONS

DRAWING No.	REV.	SHEET
NBPS6–S–003	D	10/28