Comox Valley REGIONAL DISTRICT

Statement of Intent

CSWM Organics Processing Facility - Block J Development Permit
April 12, 2021

The Comox Valley Regional District (CVRD) intends to apply for a development permit to construct a compost facility at 6300 Argonaut Road, Campbell River.

The Comox Starthcona Waste Management (CSWM), a function of the CVRD is working towards implementing an organics management program. The program's objective is to divert food waste from residential homes in the member municipalities (City of Campbell River, City of Courtenay, Town of Comox, and Village of Cumberland) away from the landfill. This is a high priority for the CVRD and for the CSWM board to meet waste diversion targets outlined in the Solid Waste Management Plan (SWMP). As such, this project has received considerable, and time sensitive conditional grants from the provincial and federal governments. The project team has completed extensive engagement with First Nations, neighbours, residents and other stakeholders.

As part of this program, a composting facility will be constructed at the Campbell River Waste Management Centre (CRWMC), Block J in accordance to terms of Leas No. 103555 and consistent with the zoning of the property for composting and industrial 4 use. The CVRD is a long term lease holder of the Crown Land known as Block J of District Lot 85, Sayward District. The site is currently used for gravel extraction to be used as daily cover and for the upcoming final closure of the adjacent landfill. The site also contains an infiltration pond for stormwater management purposes to support the landfill following a final closure in 2022.

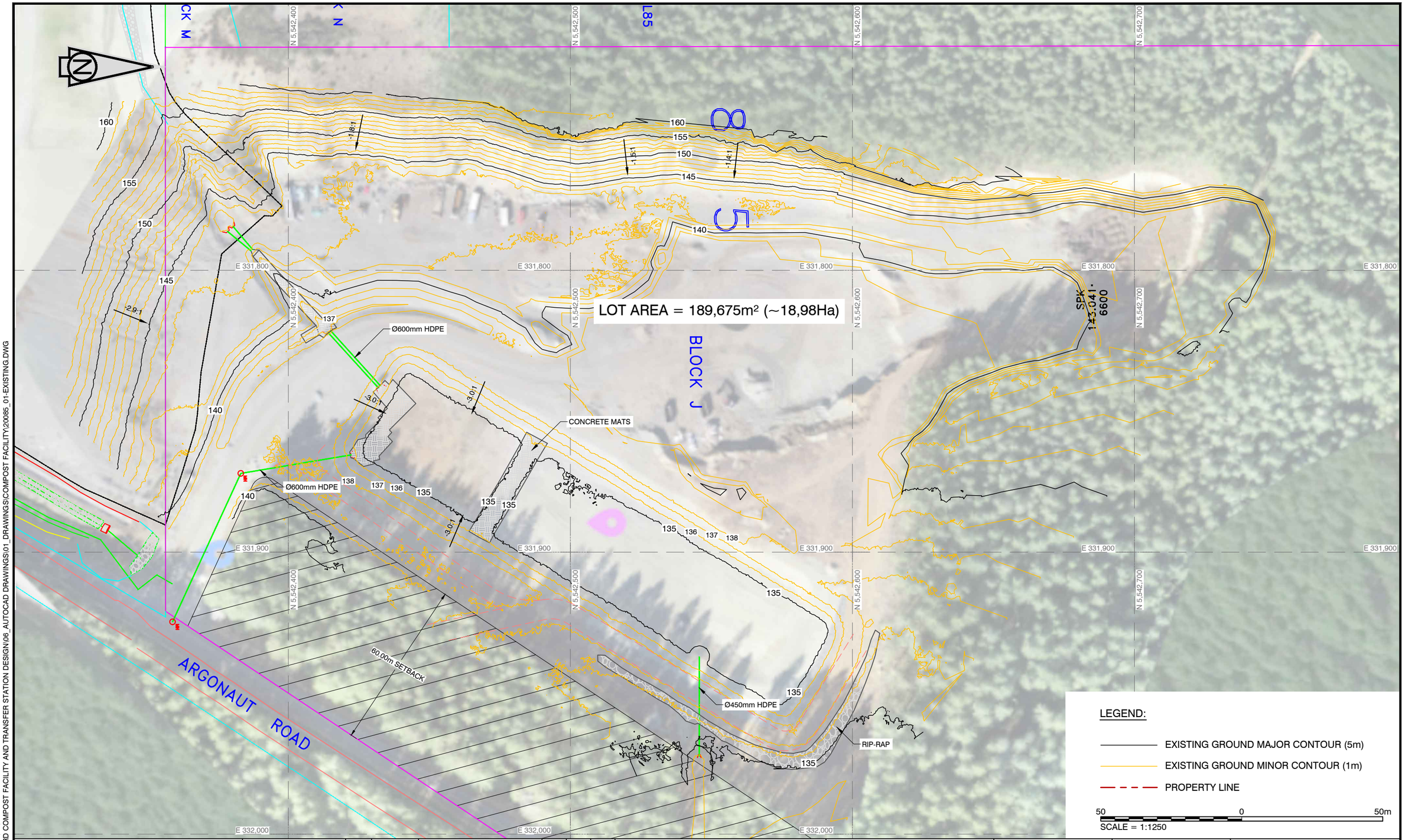
Block J covers an area of 18.9 ha, the majority of which is located within the Agricultural Land Reserve (ALR) Land. In October 2019, the Agricultural Land Committee (ALC) approved the use of a previously disturbed area of 6 ha of Block J for non-farm use. The composting facility will be constructed within this approved foot print. The remaining 12.9 ha of the site is heavily forested, which will provide an excellent buffering of the facility from a neighbouring resident and from the Argonaut Rd. The closest structure to a public road is the site office, which is 60m away from Argonaut Road.

The compost facility design includes the following elements:

- Site office
- Reinforced concrete foundation walls supporting steel coverall structures (4) for:
    - Primary Composting (Gore technology), including curtain and roll-up doors
    - Secondary Compost (Gore technology),
    - Storage Maturation
    - Equipment Maintenance Building
- Reinforced concrete foundation material handling areas (Process Courtyard)
- Gravel access roads
- Biofilter
- Underground Double wall containment c/w leak detection Leachate tank
- Lined contact storm water collection pond
- Fuel storage

- Fire suppression system (Dry hydrant)
- Electric Fence / Wildlife Exclusion Fence and security gates
- Water supply well
- Traffic Management Plan
- Power and telephone connection
- Yard lighting
- Treed buffers

It is the CVRD's intent to build and operate the composting facility in such a way as to meet all of the City of Campbell River's development requirements for the neighborhood and to meet all applicable provincial and federal regulations.



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SPERLING HANSEN ASSOCIATES

Landfill Services Group
- Landfill Siting
- Design & Operations Plans
- Landfill Closure
- Environmental Monitoring

#8 - 1225 Keith Road East
North Vancouver, B.C. V7J 1J3
Phone: (604) 986-7723
Fax: (604) 986-7734

SEAL

No.	DATE yr/m/day	REVISIONS	DRAWN	CHK'D	APP'D
C	2021/04/02	ISSUED FOR 90% DESIGN REVIEW	LB	MC	MC
B	2021/01/25	ISSUED FOR 50% CLIENT REVIEW	LB	MC	MC
A	2021/01/22	ISSUED FOR 50% DESIGN REVIEW	LB	MC	MC

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CLIENT:

Comox Valley REGIONAL DISTRICT

DESIGN BY:	L.BOBARIU	SHA PROJECT #	20085
DRAWN BY:	L.BOBARIU	DATE ISSUED:	2021/01/20
CHECKED BY:	M.CVACI	HORIZONTAL SCALE:	1:1250
APPROVED BY:	M.CVACI	VERTICAL SCALE:	1:1250

ADJUST SCALE 50% FOR 34"x22" SHEET

REGIONAL ORGANICS COMPOSTING FACILITY

EXISTING TOPOGRAPHY 07 OCT 2020

DRAWING NO:	REV	SHEET
20085-002	C	002

Comox Strathcona Waste Management

Zoning Bylaw Compliance Table

Zoning Bylaw Compliance Table
April 22, 2021

Table 1: List of Provisions including existing and proposed uses, density, lot coverage, FAR, Building hights, Parking Space Calcs, Setbacks

ID	Building Use	Building Area	Unit	Lot Density	Building Height (m)	Building Structure Type	Colour	Material	Staff	Parking Stall Allocation		
										Staff	Public	Disability Parking
1	Primary Compost Building	2011.7	m^2	1.06%	13.98	MegaDome™ Coverall	White	Fabric Cover, Hot Galvanized Dip Steel Trusses	2			
2	Secondary Compost Building	1162.8	m^2	0.61%	13.98	MegaDome™ Coverall	White	Fabric Cover, Hot Galvanized Dip Steel Trusses				
3	Maintenance Building	100	m^2	0.05%	8.13	MegaDome™ Coverall	White	Fabric Cover, Hot Galvanized Dip Steel Trusses		4		
4	Storage Maturation Building	1620	m^2	0.85%	13.98	MegaDome™ Coverall	White	Fabric Cover, Hot Galvanized Dip Steel Trusses	1			
5	Site Office	29.7	m^2	.02%	2.9	High Cube Shipping Container	Ivory	Steel with Wood Framing	1	2		
Other Compost Areas												
6	Biofilter	941.6	m^2	0.50%	NA	NA	NA	Concrete blocks + Biofilter Media				
7	Process Courtyard	3958.3	m^2	2.09%	NA	NA	NA	Concrete or Asphalt Pad				
8	Customer Pickup Area	787.2	m^2	0.41%	NA	NA	NA	Concrete or Asphalt Pad			4	1

	Block J Lot Size	**189,700**	**m^2**

Table 2: Zoning Bylaw Compliance Table

I-4 Zoning Requirements		
Zoning Bylaw Provision	**Requirement**	**Proposal**
Permitted Use	Composting Facility only on Block J	Regional Organics Composting Facility within Block J
Lot Area	Minimum 4 ha	18.97 ha
Lot Frontage	Minimum 60 m	346 m
Lot Coverage	Maximum 10% - all buildings	2.35%
Front, Rear and Side Yards	Minimum 8 m	Front = 146.3 m Rear = 59.2 m South Side = 81 m North Side = 283.9
Yard Adjacent to Hwy or Arterial Road	30 m	60 m
Building Height	Maximum of principle building 10 m	Primary, Secondary, Storage Bldgs = 13.98 m Maintenance Bldg = 8.13 m Site Office = 2.9m
Parking and Outdoor Storage	No parking, loading or outdoor storage areas are permitted within the minimum required yards along a lot line adjoining a public road	No parking, loading and outdoor storage areas are within 60 m from lot line adjoining Argonaut Rd
Conditions of Use	Properties not served by community sewer shall require a waste management plan acceptable to the City subject to the appropriate approval of the Province under either the Health Act or the Waste Management Act, where applicable	On-site septic system permitted under the Health Act

LIMIT OF SURVEY
PROPOSED GROUNDWATER WELL LOCATION
STORMWATER INFILTRATION SWALE
LOADING RAMP
EXPANSION
CUSTOMER PICK-UP
STORAGE MATURATION
TROMMEL
OPERATIONS COURTYARD
BIOFILTER
PERIMETER FENCE
CUSTOMER PARKING 4+1 STALLS c/w WHEEL STOP
ONE WAY
STORMWATER CATCHBASIN W/ PUMP
PRIMARY COMPOST
SECONDARY COMPOST
10x10m MAINTENANCE BUILDING
STAFF PARKING 4 STALLS c/w WHEEL STOP
Ø600mm HDPE
STAFF PARKING 2 STALLS c/w WHEEL STOP
AUTHORIZED VEHICLES ONLY
ROOFTOP WATER STORAGE TANK
FACILITY ENTRANCE SITE OFFICE
SEPTIC INFILTRATION SYSTEM
CONCRETE MATS
LIMIT OF SURVEY
GATE
CHAIN LINK FENCE WITH BARBED WIRE
DRY HYDRANT CONNECTION
AERATION SYSTEM BLOWER
SPILLWAY
MOORING POST
COURTAIN BAFFLES
RIP-RAP
Ø450mm HDPE
SPK 143.041-6600
E 331,800
E 331,900
E 332,000
N 5,542,400
N 5,542,500
N 5,542,600
N 5,542,700

LEGEND:

- EXISTING GROUND MAJOR CONTOUR (5m)
- EXISTING GROUND MINOR CONTOUR (1m)
- PROPERTY LINE
- DESIGNED MAJOR CONTOUR (5m)
- DESIGNED MINOR CONTOUR (1m)

50 0 50m
SCALE = 1:1250

PDF GENERATED by: X:\PRJ\PRJ20\PRJ20085 - CVRD COMPOST FACILITY AND TRANSFER STATION DESIGN\06_AUTOCAD DRAWINGS\01_DRAWINGS\COMPOST FACILITY\20085_02-SITE LAYOUT.DWG
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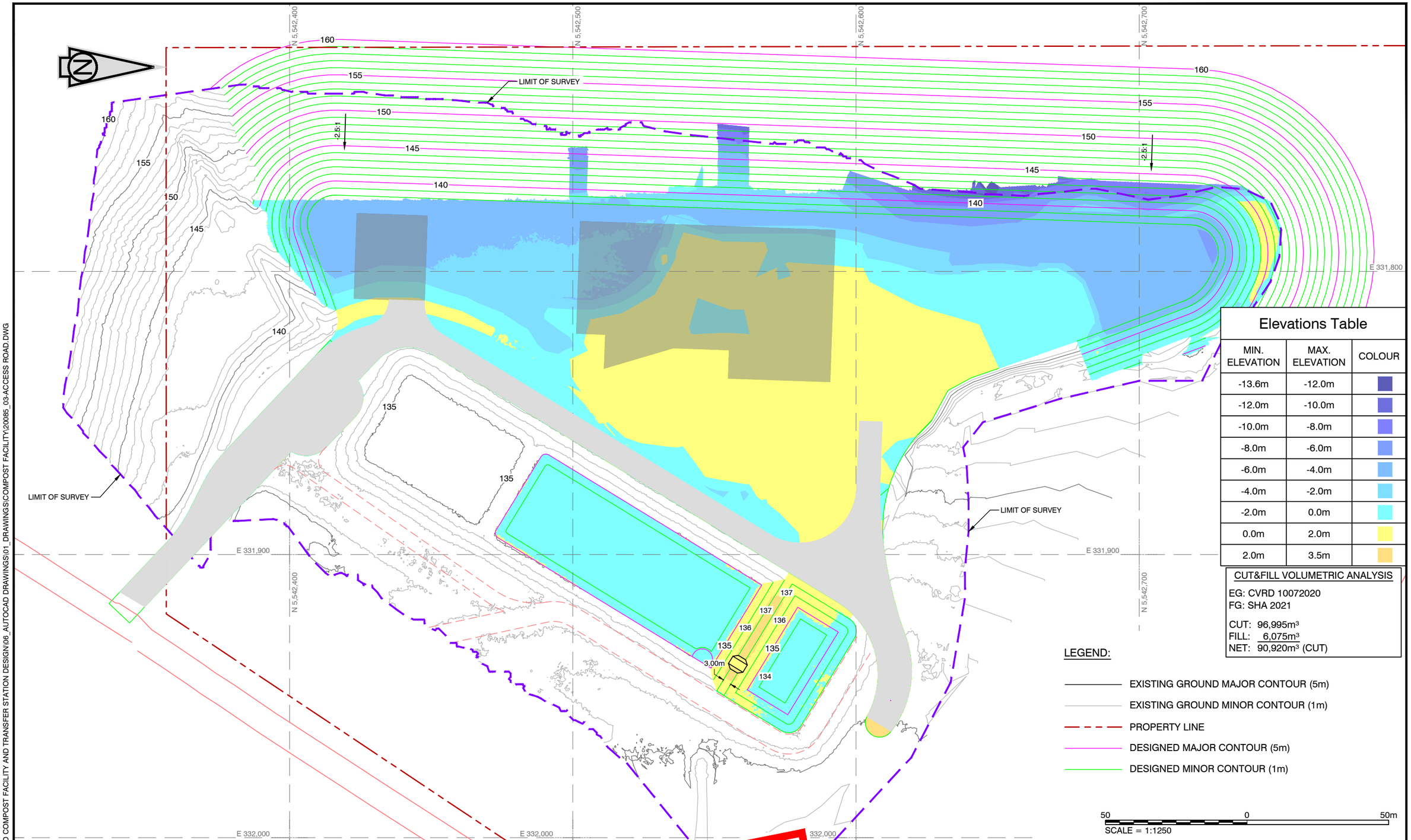
APPROVED BY:	M.CVACI	VERTICAL SCALE:	N.T.S.

ADJUST SCALE 50% FOR 34"x22" SHEET

REGIONAL ORGANICS COMPOSTING FACILITY

SITE LAYOUT

DRAWING NO:	REV	SHEET
20085-100	C	100



Elevations Table

MIN. ELEVATION	MAX. ELEVATION	COLOUR
-13.6m	-12.0m	
-12.0m	-10.0m	
-10.0m	-8.0m	
-8.0m	-6.0m	
-6.0m	-4.0m	
-4.0m	-2.0m	
-2.0m	0.0m	
0.0m	2.0m	
2.0m	3.5m	

CUT&FILL VOLUMETRIC ANALYSIS

EG: CVRD 10072020
FG: SHA 2021

CUT: 96,995m³
FILL: 6,075m³
NET: 90,920m³ (CUT)

LEGEND:

- EXISTING GROUND MAJOR CONTOUR (5m)
- EXISTING GROUND MINOR CONTOUR (1m)
- PROPERTY LINE
- DESIGNED MAJOR CONTOUR (5m)
- DESIGNED MINOR CONTOUR (1m)

50 0 50m
SCALE = 1:1250

DRAFT

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APPROVED BY:	M.CVACI	VERTICAL SCALE:	N.T.S.

ADJUST SCALE 50% FOR 34"x22" SHEET

REGIONAL ORGANICS COMPOSTING FACILITY

FINAL GRADE CUT & FILL

DRAWING NO:	REV	SHEET
20085-102	C	102

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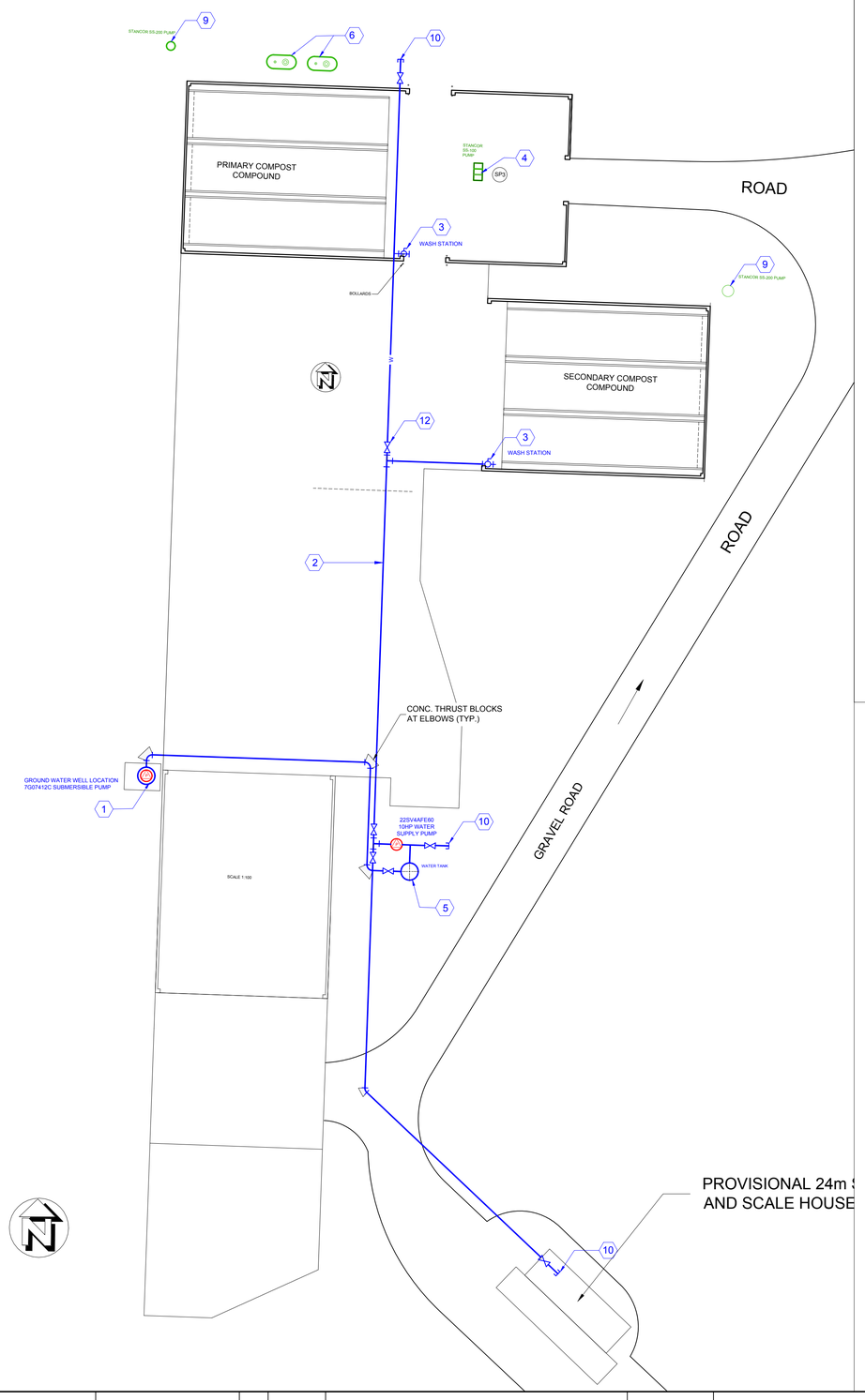
E

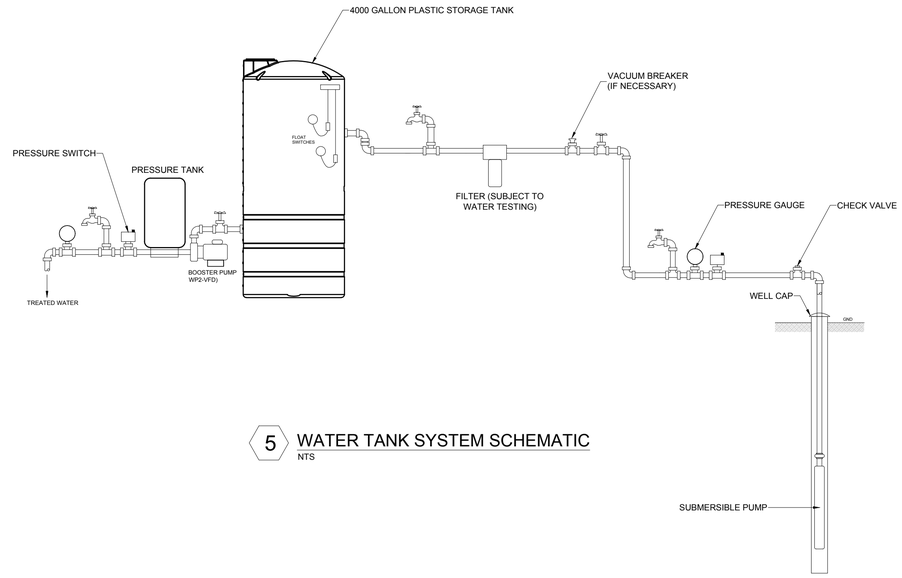
GENERAL NOTES:

1. REFER TO DRAWING 206 F FOR LEACHATE COLLECTION SYSTEM SCHEMATICS

REFERENCE NOTES:

1. GRUNDFOS 3"Ø 22SQ 25GPM @ 210' T0H, 1-1/2" DISCHARGE, 1 5 HP INSTALL 175 L ABOVE GRADE VERTICAL G I HYDRO PNEUMATIC PRESSURE TANK C/W PRESSURE SWITCH IN THE OPERATIONS BUILDING EXACT LOCATION OF TANK TO BE COORDINATED WITH THE OWNER (HEAT WRAP LINES ABOVE GROUND).
2. 50mm DIA HDPE PIPE BURIED 1400mm BELOW GRADE
3. HOSE BIB, 900mm ABOVE FINISHED FLOOR INSULATE AND HEAT TRACE PIPE FROM HOSE BIB TO 1400mm BELOW GRADE SECURE PIPE TO THE ADJACENT WALL
4. LEACHATE SUMP PUMP 3/4 HP SEAWAGE GRINDER PUMP WITH A TETHERED FLEAT SWITCH, MAX LIFT 36FT MAX FLOW 4260 GPH DEBIT MAX
5. 4000 GALLON HOLDING TANK
6. 1000 GAL UNDERGROUND FRP DOUBLE WALL LEACHATE STORAGE TANKS
7. LEACHATE AERATION BLOWER
8. LEACHATE RE-HYDRATION SPRAY PUMP
9. LEACHATE SUMP
10. INSTALL 25mm DIA SHUT-OFF VALVE AND CAP END OF PIPE FOR FUTURE CONNECTION (BY OTHERS)
11. 50mm DIA CURB VALVE BOX, LENGTH TO SUIT PIPE ELEVATION





5 WATER TANK SYSTEM SCHEMATIC
NTS

LEGEND

- P — PUMP
- F — FORCEMAIN
- L — LEACHATE LINE
- W — WATER LINE
- E — POWER

VALVES

- SHUT-OFF VALVE
- HOSE BIB WITH SHUT OFF VALVE
- BALANCING VALVE
- CHECK VALVE
- PRESSURE REDUCING VALVE
- FCV — FLOW CONTROL VALVE

FITTINGS

- ELBOW UP
- ELBOW DOWN
- TEE UP
- TEE DOWN
- CONCENTRIC REDUCER
- ECCENTRICAL REDUCER
- END CAP
- UNION
- WYE
- FLANGED CONNECTION
- FLOW ARROW
- PIPE SLEEVE
- ELBOW
- TEE
- CO — CLEANOUT

PRELIMINARY NOT FOR CONSTRUCTION

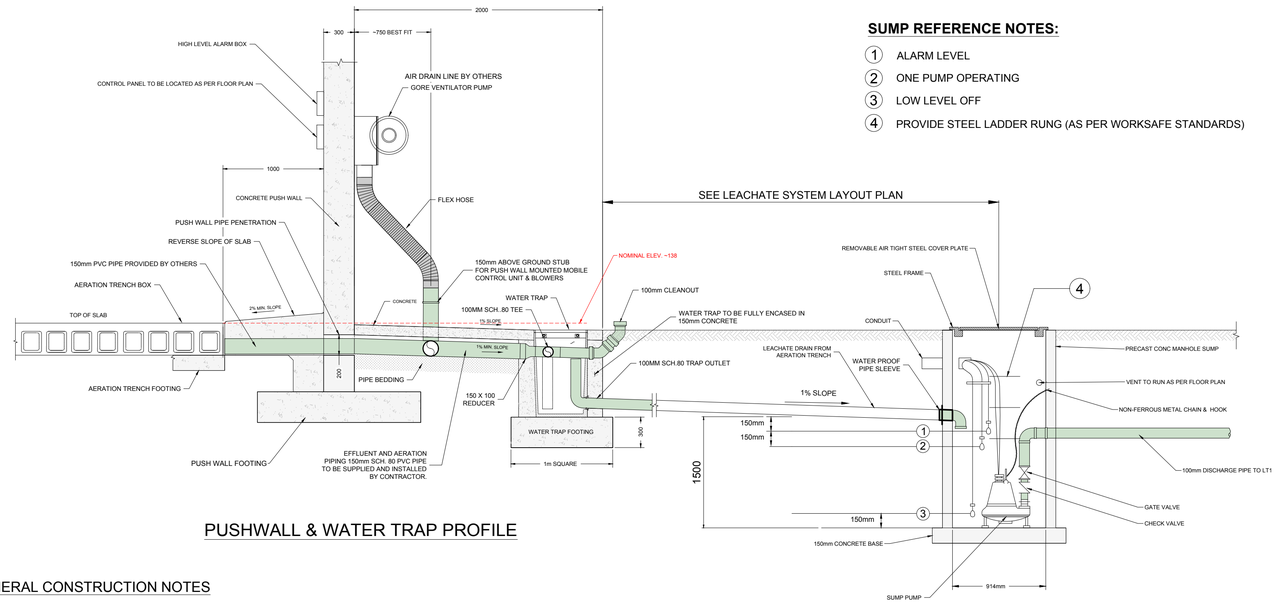
PREPARED BY:
Weaver Tech
Science - Construction - Engineering

SEAL

NO.	DATE	REVISIONS	BY
C			
B	2021/03/31	ISSUED FOR 90% PROGRESS REVIEW	TW
A	2021/01/31	ISSUED FOR 50% PROGRESS REVIEW	TW

Comox Valley REGIONAL DISTRICT

DESIGN BY:	TW	PROECT:	COMPOST FACILITY
DRAWN BY:	GMK		
APPROVED BY:		TITLE:	WATER DISTRIBUTION PLAN
DATE:	MARCH 31,2021		
SCALE:	AS SHOWN	DRAWING NO:	20085 - 205



PUSHWALL & WATER TRAP PROFILE

SUMP REFERENCE NOTES:

1. ALARM LEVEL
2. ONE PUMP OPERATING
3. LOW LEVEL OFF
4. PROVIDE STEEL LADDER RUNG (AS PER WORKSAFE STANDARDS)

GENERAL CONSTRUCTION NOTES

1. CONCRETE DETAIL/ SPECIFICATI0N SHALL BE PROVIDED BY THE LOCAL PROFESSIONAL ENGINEERING COMPANY GENERATING THE CONSTRUCTION DRAWINGS.
2. CONCRETE WILL BE IN CONTACT WITH ORGANIC MATERIALS AND REQUIRE PH TYP. 4 to 8 OR CHEMICAL CORROSI0N (TYP. SIMILAR T0 CORR0SION EXPERIENCED ON A TRANSFER STATI0N FLOOR) PROTECTION.
3. CONCRETE WILL BE IN CONTACT WITH ORGANIC MATERIALS AND REQUIRE TEMPERATURE FLUCTUATION PROTECTION. CONCRETE SHOULD WITHSTAND LONG PERIODS OF HIGH TEMPERATURES (UP TO 180° F) AND MUST ALSO BE ABLE TO WITHSTAND AMBIENT TEMPERATURES THROUGH SEASONAL FLUCTUATIONS SUCH AS WINTER CONDITI0NS BEL0W FREEZING.
4. WATER TRAP C0NSTRUCTED FROM REINFORCED FIBERGLASS.

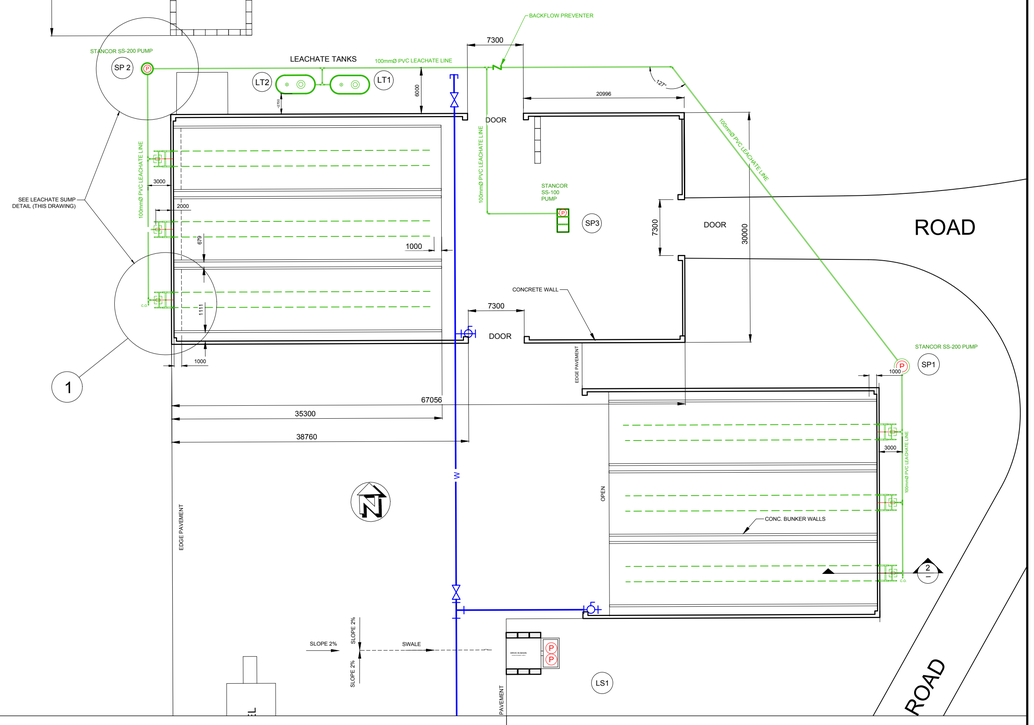
SP1 SP2 LEACHATE SUMP DETAILS 2

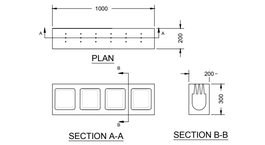
SCALE 1:30

LEACHATE COLLECTION SYSTEM LAYOUT

SCALE 1:400

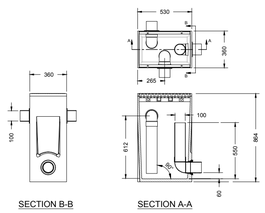
F





AERATION TRENCH DETAIL(BY OTHERS)

SCALE 1:30

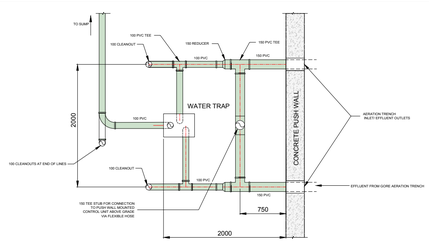


4 WATER TRAP DETAIL

SCALE 1:30

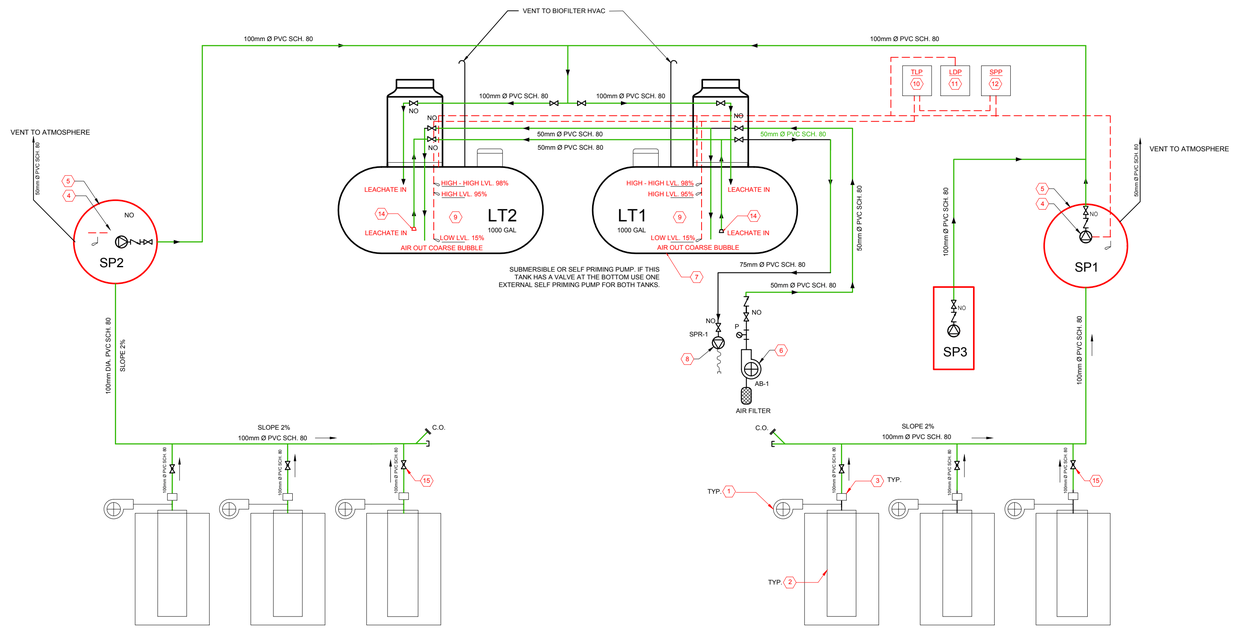
REFERENCE NOTES:

1. GORE COMPOST PILE BLOWER (SUPPLIED WITH GORE PACKAGE)
2. GORE AERATION TRENCH (SUPPLIED WITH GORE PACKAGE)
3. GORE PRE-CAST WATER TRAP (SUPPLIED WITH GORE PACKAGE)
4. SUMBERSIBLE TYPE SEWAGE GRINDER PUMP C/W INTEGRAL FLOAT LEVEL CONTROL AND STARTED, 3/4 HP, POWERFIST MODEL NO 8517789 OR APPROVED EQUAL
5. PRE-CAST CONCRETE MANHOLE C/W STEEL COVER
6. AERATION BLOWER C/W AIR FILTER, 3/4 HP GAST C/W GE MOTOR (MODEL NO : 5KC49NN0194AX), VOLTAGE TBD PROVIDE C/W DISCHARGE AIR PRESSURE GAUGE CONTRACTOR TO VERIFY BLOWER SIZE BASED ON AIR VOLUME FLOW REQUIREMENTS COORDINATE WITH OWNER
7. 5000 GAL UNDERGROUND DOUBLE WALLED FRP LEACHATE STORAGE TANK C/W AND LIQUID LEAKAGE DETECTION INSTRUMENT (NEMA 4 RATED, 120VAC TYPE AND LIQUID LEVEL GAUGE PROVIDE WITH VENT AND 460mm DIA. MANWAY WITH COVER
8. SPRAY PUMP C/W 30m OF 38mm DIA FIRE HOSE AND ADJUSTABLE FLOW SPRAY NOZZLE PUMP SHALL BE GORMAN-RUPP MODEL 02C3-X1 5 1P SELF PRIMING, VO GE TBD NOZZLE SHALL BE ANGUS FIRE "NOZ #366" OR APPROVED EQUAL
9. FLOAT SWITCH SENSOR COORDINATE LEVEL SWITCH HEIGHT TO SUIT TANK DIMENSIONS
10. COMBINATION TANK LEVEL INDICATOR AND LEVEL ALARM PANEL
11. LEAK DETECTION PANEL
12. SUMP PUMP PANEL
13. CATCH BASIN
14. FOOT VALVE (SPRING LOADED CHECK VALVE WITH STAINLESS STEEL STRAINER)
15. KNIFE GATE VALVE 100mm DIA, ABS BODY, STAINLESS STEEL PADDLE IN PRECAST ...
16. INTERLOCK SUMP PUMP "SP-1" WITH LEVEL ALARM PANEL SUMP PUMP TO BE TURNED OFF WHEN HIGH-HIGH LEVEL ALARM CONDITION IS ACTIVATED



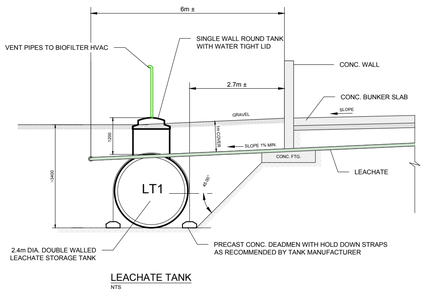
1 EFFLUENT COLLECTION & AERATION PIPING PLAN

SCALE 1:50



LEACHATE SYSTEM SCHEMATIC

NTS



LEACHATE TANK

NTS

LEGEND

- P — PUMP
- F — FORCEMAIN
- L — LEACHATE LINE
- W — WATER LINE
- E — POWER

PRELIMINARY NOT FOR CONSTRUCTION

PREPARED BY:

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Science - Construction - Engineering

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Comox Valley REGIONAL DISTRICT

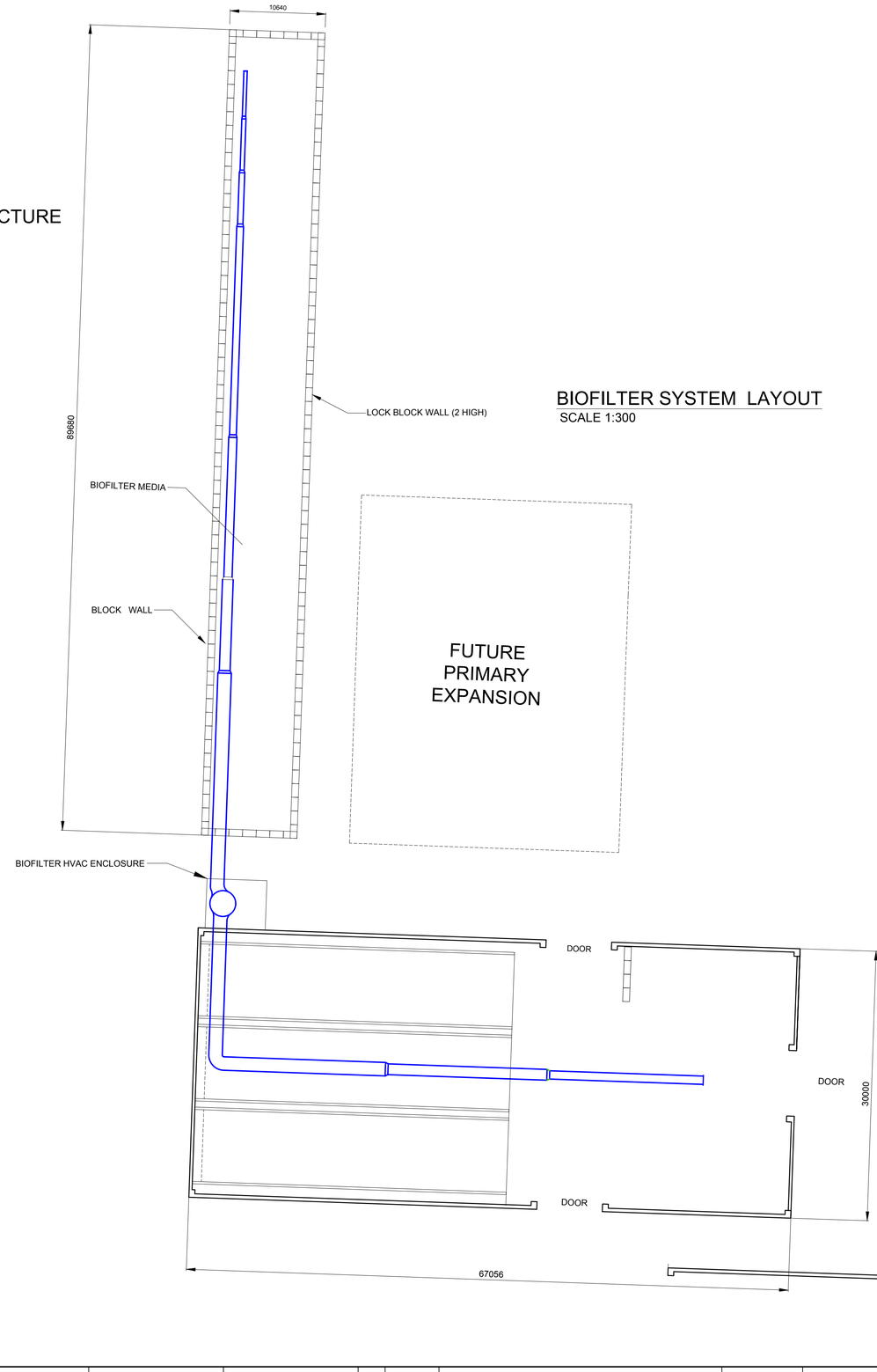
DESIGN BY:	TW
DRAWN BY:	GMK
APPROVED BY:	
DATE:	MARCH 31,2021
SCALE:	AS SHOWN

PROJECT: COMPOST FACILITY

TITLE: LEACHATE COLLECTION SYSTEM

DRAWING NO: 20085 - 206

G



BIOFILTER SYSTEM LAYOUT
SCALE 1:300

REFERENCE NOTES:

1
2
3
4
5
6
7
8
9
10
11
12

NOTES:

LEGEND

P
F — FORCEMAIN
L — LEACHATE LINE
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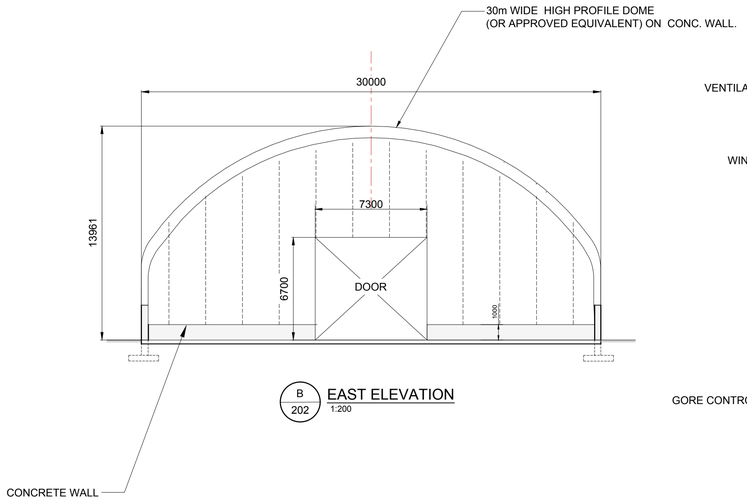
DESIGN BY:	TW
DRAWN BY:	GMK
APPROVED BY:	
DATE:	MARCH 31,2021
SCALE:	AS SHOWN

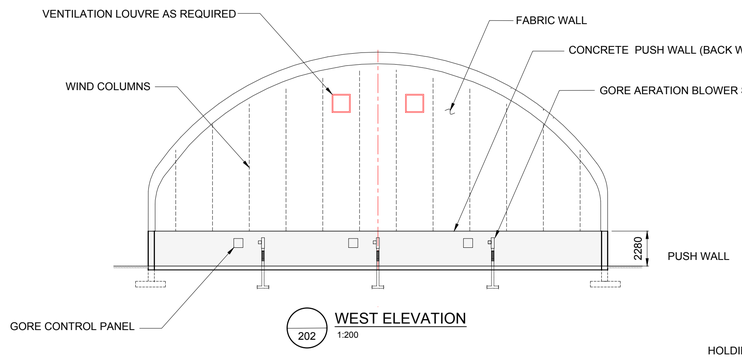
PROECT: COMPOST FACILITY

TITLE: BIOFILTER PLAN

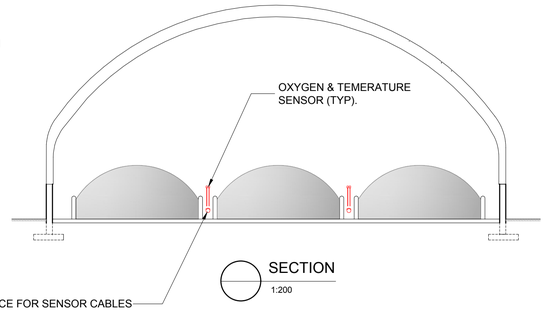
DRAWING NO: 20085 - 207



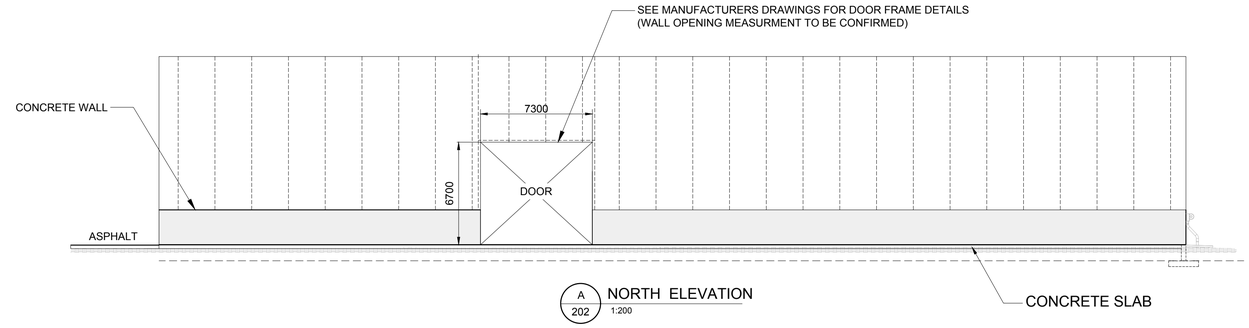
B / 202 EAST ELEVATION 1:200



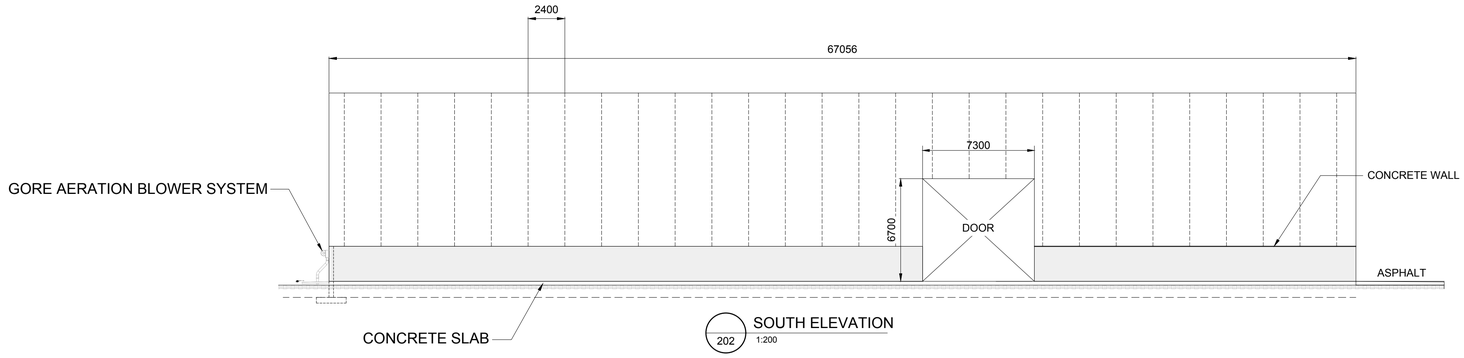
202 WEST ELEVATION 1:200



SECTION 1:200



A / 202 NORTH ELEVATION 1:200



202 SOUTH ELEVATION 1:200

NOTES:

1. DOME STRUCTURE AND FOUNDATION TO BE DESIGNED BY DOME MANUFACTURER'S REGISTERED PROFESSIONAL ENGINEER. DOME MANUFACTURER SHALL PROVIDE SIGNED AND SEAL CONSTRUCTION DRAWINGS AND LETTERS OF ASSURANCE.
2. A DIMENSIONS SHOWN SHALL BE CONFIRMED BY THE DOME MANUFACTURER.
3. SEE DRAWING 301 FOR FOOTINGS.

PRIMARY COMPOST COMPOUND ELEVATIONS

PREPARED BY:

Weaver Tech
Science - Construction - Engineering

PRELIMINARY NOT FOR CONSTRUCTION

SEAL

NO.	DATE	REVISIONS	BY
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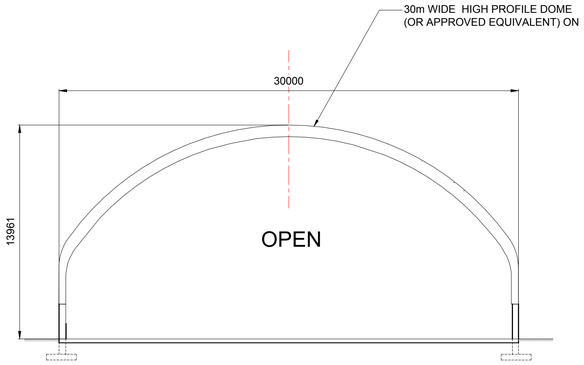
B	2021/03/31	ISSUED FOR 90% PROGRESS REVIEW	TW
A	2021/01/31	ISSUED FOR 50% PROGRESS REVIEW	TW

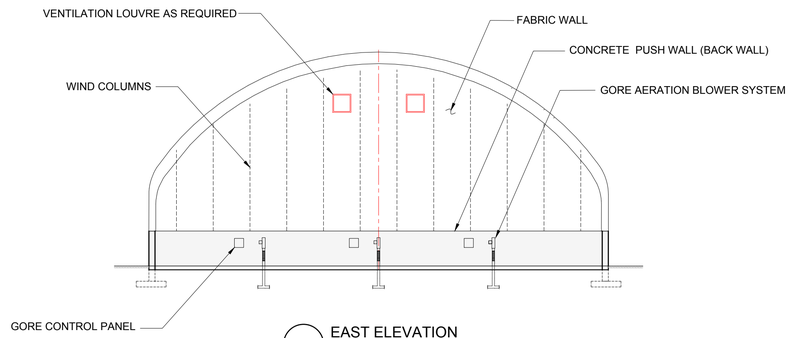
Comox Valley REGIONAL DISTRICT

DESIGN BY:	JVD	PROECT:	COMPOST FACILITY
DRAWN BY:	GMK		
APPROVED BY:		TITLE:	PRIMARY COMPOST COMPOUND ELEVATIONS
DATE:	MARCH 31,2021		
SCALE:	AS SHOWN	DRAWING NO:	20085 - 209

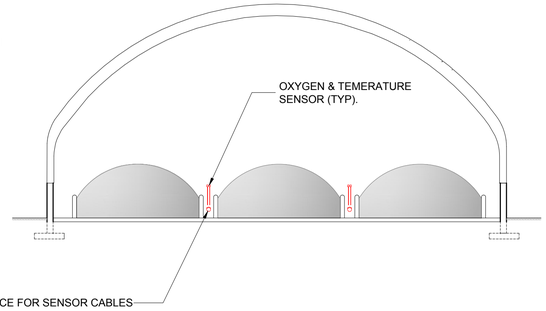
J

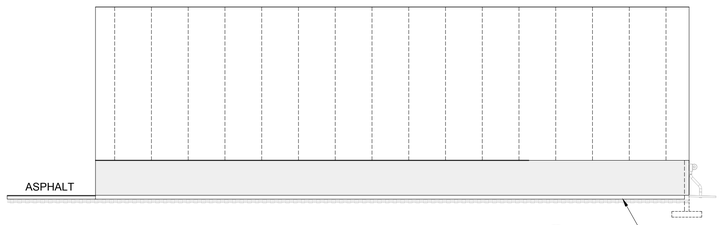


WEST ELEVATION
202 1:200

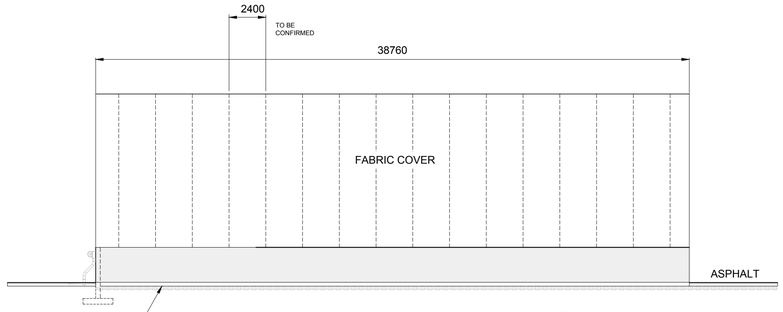


EAST ELEVATION
202 1:200

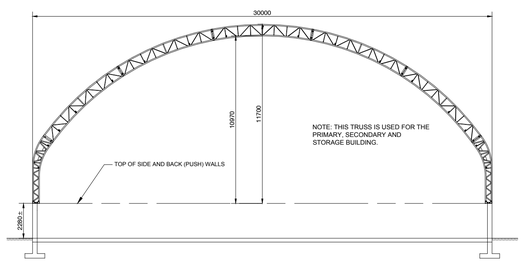




SOUTH ELEVATION SECONDARY COMPOUND
1:200 202



NORTH ELEVATION SECONDARY COMPOUND
1:200 202



DOME HIGH PROFILE TRUSS
SCALE 1:100

SECONDARY COMPOST COMPOUND ELEVATIONS

PREPARED BY:

Weaver Tech
Science - Construction - Engineering

PRELIMINARY NOT FOR CONSTRUCTION

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NO.	DATE	REVISIONS	BY
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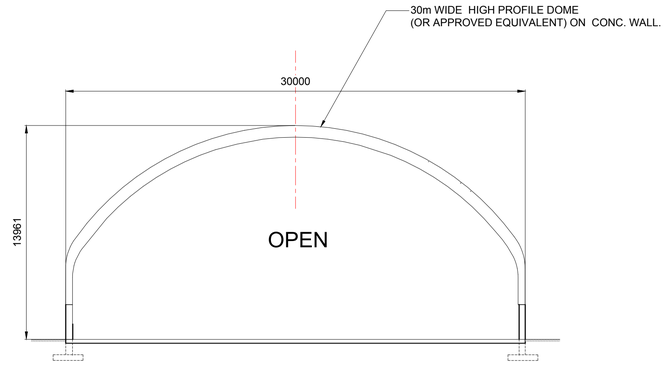
B	2021/03/31	ISSUED FOR 90% PROGRESS REVIEW	TW
A	2021/01/31	ISSUED FOR 50% PROGRESS REVIEW	TW

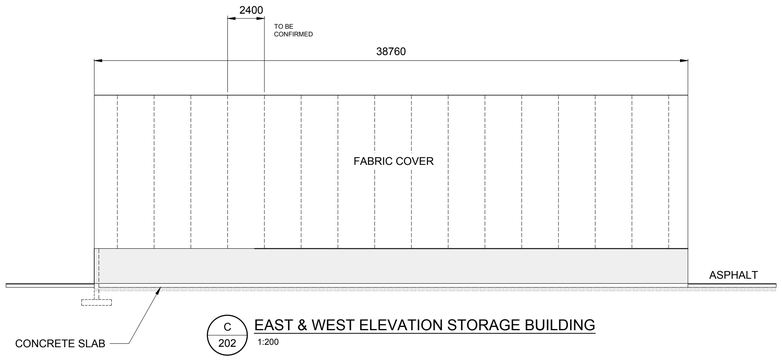
Comox Valley REGIONAL DISTRICT

DESIGN BY:	JVD		PROECT: COMPOST FACILITY
DRAWN BY:	GMK		
APPROVED BY:			TITLE: SECONDARY COMPOUND ELEVATIONS
DATE:	MARCH 31.2021		
SCALE:	AS SHOWN		DRAWING NO: 20085 - 210

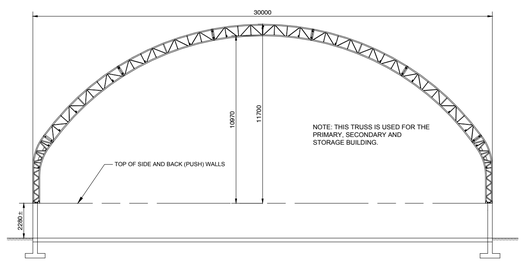
K



D/202 NORTH & SOUTH ELEVATIONS STORAGE BUILDING
1:200

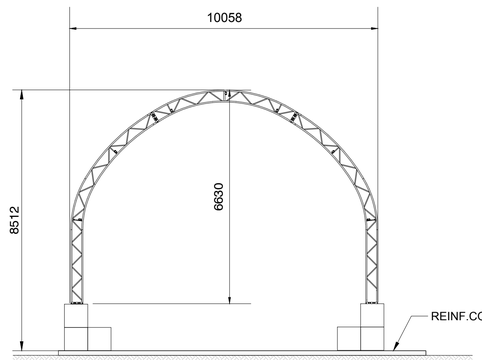


C/202 EAST & WEST ELEVATION STORAGE BUILDING
1:200

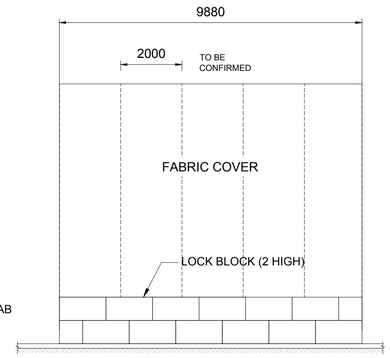


STORAGE BUILDING

DOME HIGH PROFILE TRUSS
SCALE 1:100



1/203 NORTH ELEVATION



2/203 WEST ELEVATION

MAINTENANCE SHED DOME HIGH PROFILE
SCALE 1:100

STORAGE & MAINTENANCE BUILDING ELEVATIONS

PREPARED BY:

Weaver Tech
Science - Construction - Engineering

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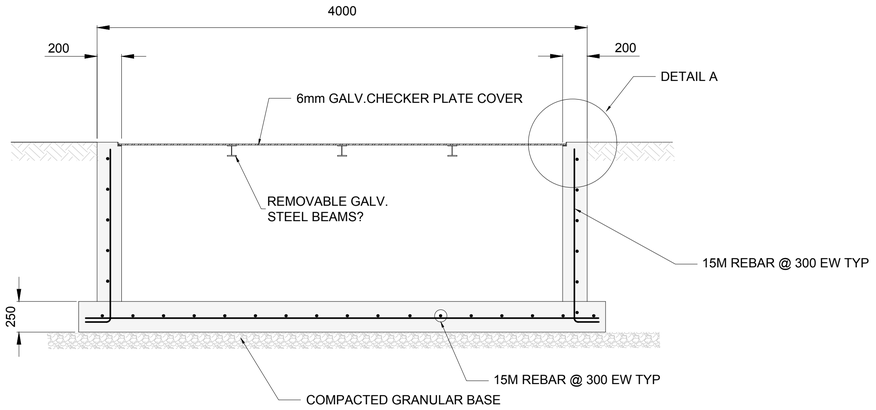
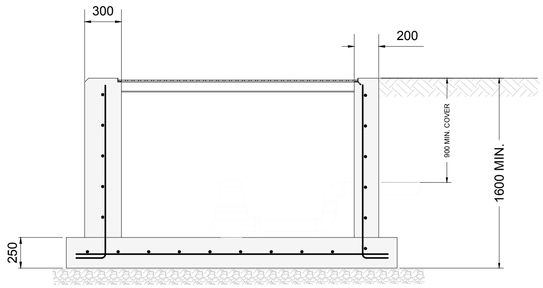
Comox Valley REGIONAL DISTRICT

DESIGN BY:	JVD		PROECT: COMPOST FACILITY
DRAWN BY:	GMK		
APPROVED BY:			TITLE: STORAGE & MAINTENANCE BLDG. ELEVATIONS
DATE:	MARCH 31,2021		
SCALE:	AS SHOWN		DRAWING NO: 20085 - 211

R



C SECTION
SCALE 1:25



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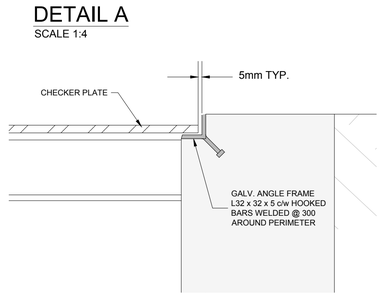
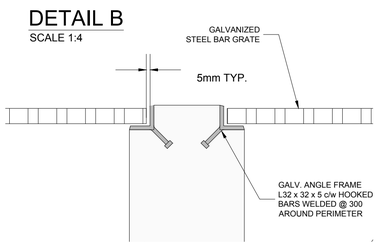
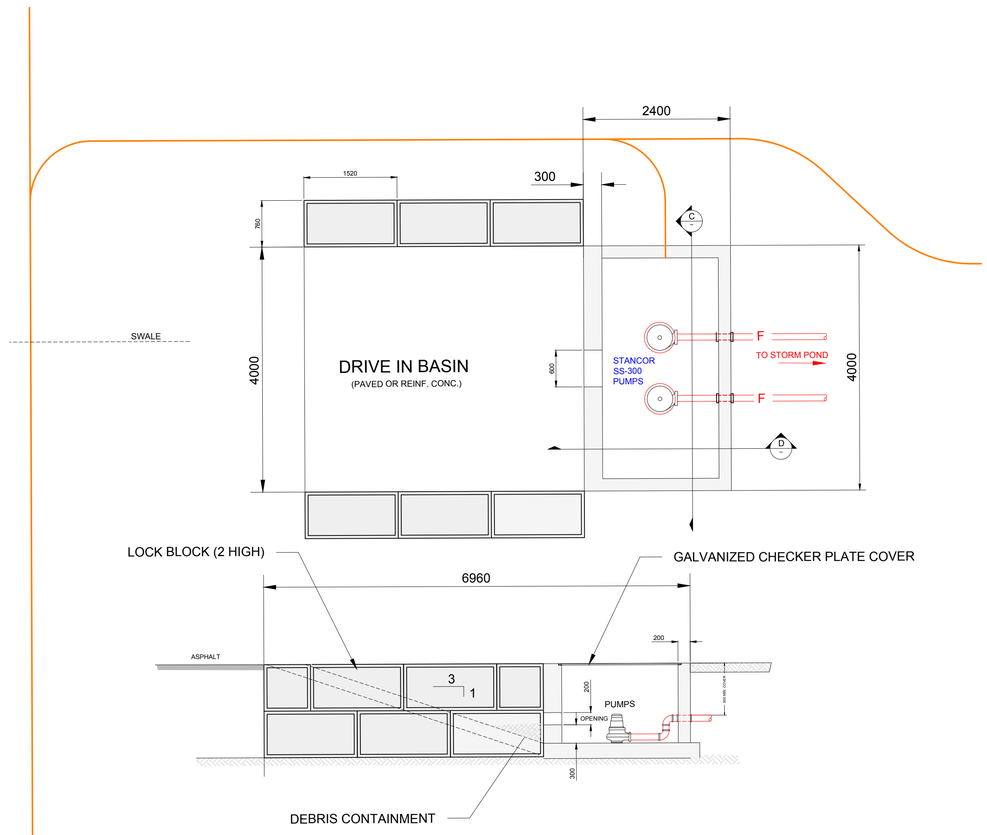
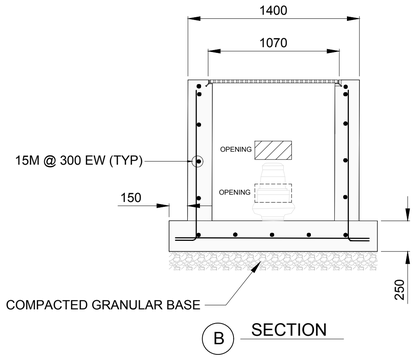
SCALE 1:25



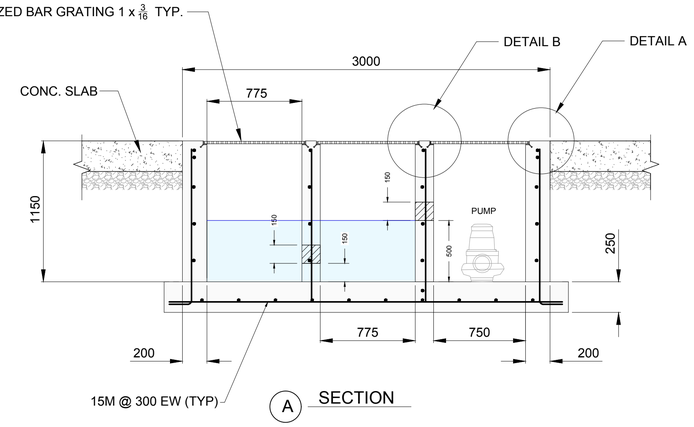




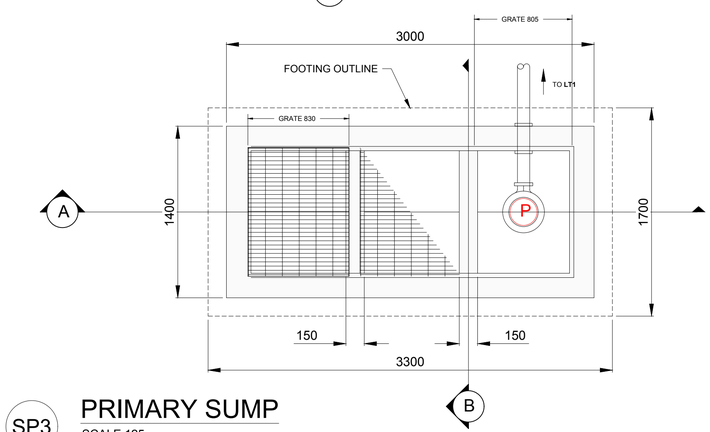
LS1 LIFT STATION
SCALE 1:50



B SECTION



A SECTION



SP3 PRIMARY SUMP
SCALE 125

PRELIMINARY NOT FOR CONSTRUCTION

PREPARED BY:
Weaver Tech
Science - Construction - Engineering

SEAL

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B	2021/03/31	ISSUED FOR 90% PROGRESS REVIEW	TW
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Comox Valley REGIONAL DISTRICT

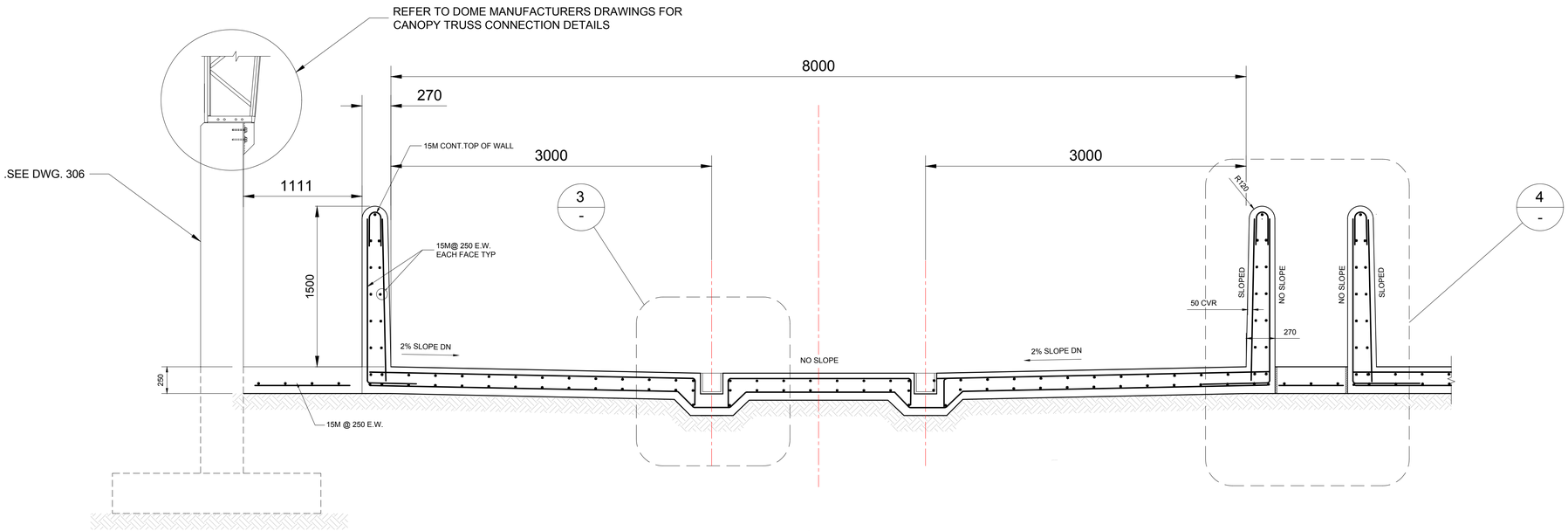
DESIGN BY:	JVD
DRAWN BY:	GMK
APPROVED BY:	
DATE:	MARCH 31,2021
SCALE:	AS SHOWN

PROECT: COMPOST FACILITY

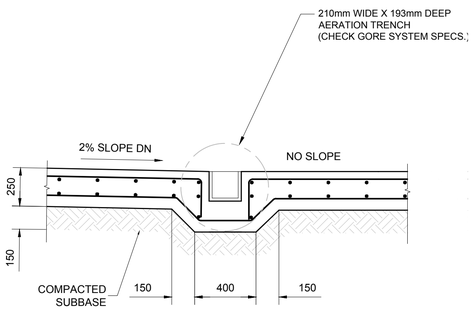
TITLE: SUMP, DRAINS & LIFT STATION DETAILS

DRAWING NO: 20085 - 304

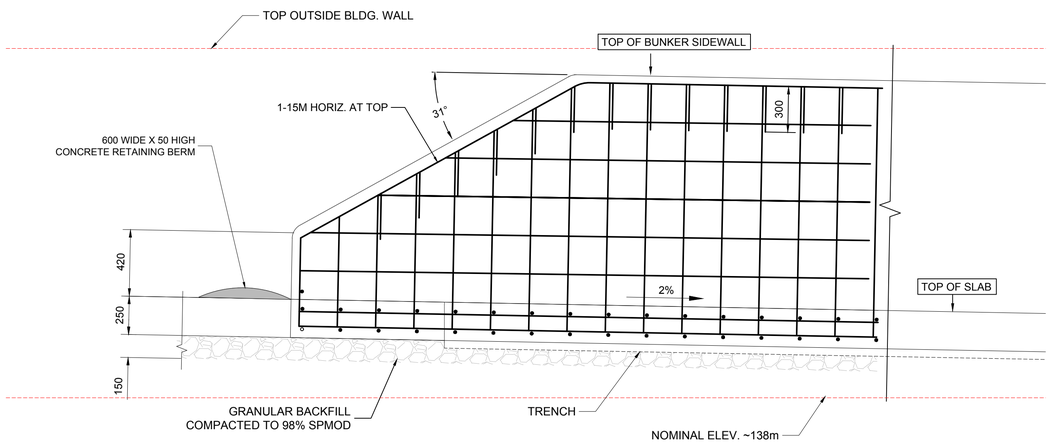
S



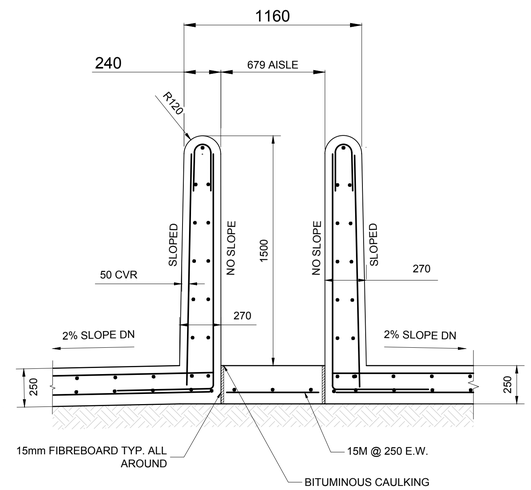
1
212
SECTION
1:25



3
-
SECTION
1:20



2
212
BUNKER WALL SECTION
1:20



4
-
SECTION
1:20

PREPARED BY:

Weaver Tech
Science - Construction - Engineering

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SEAL

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Comox Valley
REGIONAL DISTRICT

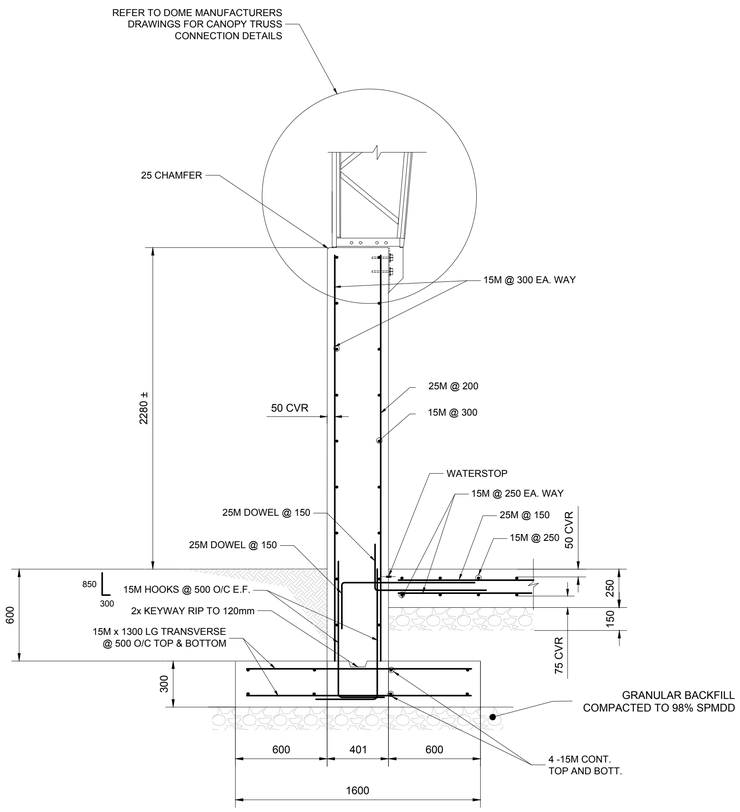
DESIGN BY:	JVD	
DRAWN BY:	GMK	
APPROVED BY:		
DATE:	MARCH 31,2021	
SCALE:	AS SHOWN	

PROECT:
COMPOST FACILITY

TITLE:
BUNKER STRUCTURAL DETAILS

DRAWING NO: 20085 - 305

T

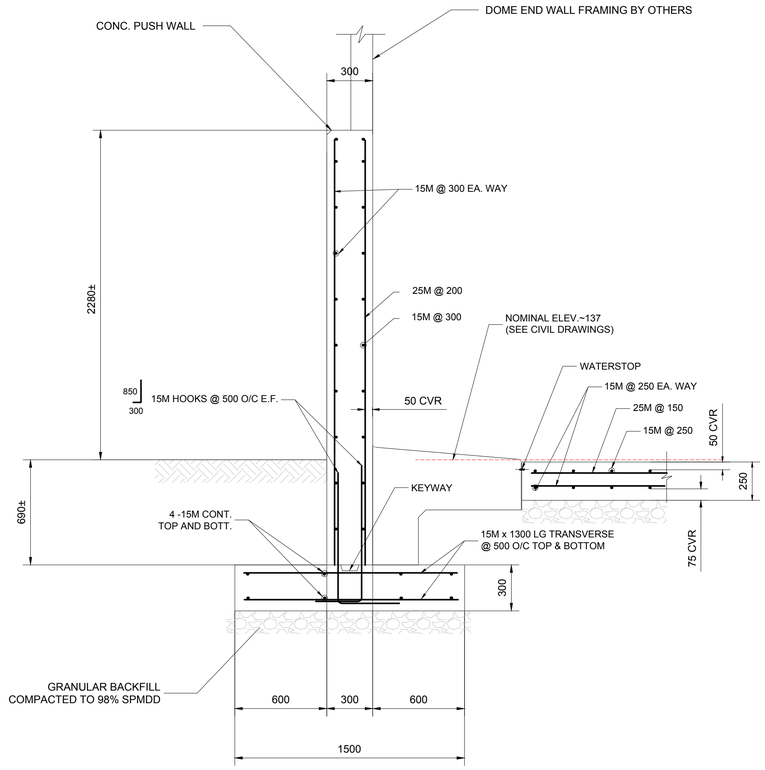


A 301

SECTION (SIDEWALLS)

1:25

A 302

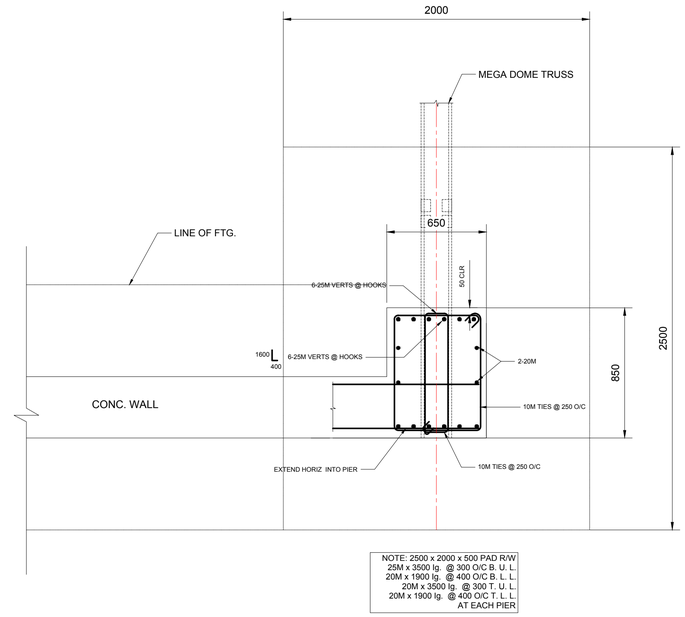


B 301

SECTION (PUSH WALL)

SCALE 1:20

B 302



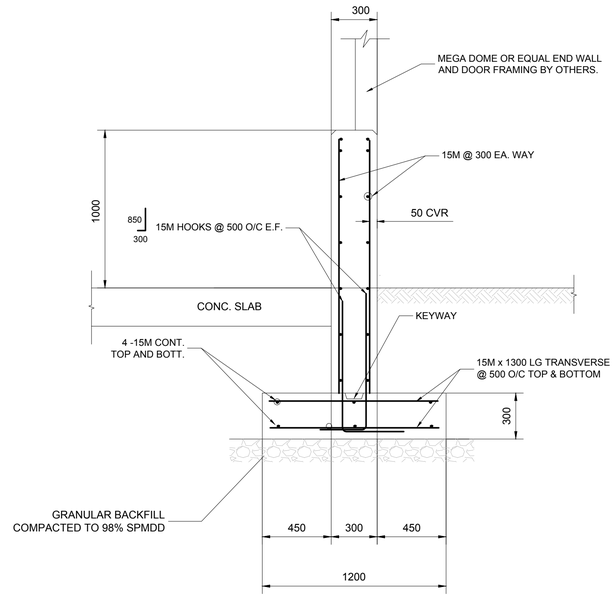
NOTE: 2500 x 2000 x 500 PAD R/W
25M x 3500 lg. @ 300 O/C B. U. L.
20M x 1900 lg. @ 400 O/C B. L. L.
20M x 3500 lg. @ 300 T. U. L.
20M x 1900 lg. @ 400 O/C T. L. L.
AT EACH PIER

P

PILASTER DETAIL

(TYP. ALL WALL & DOOR OPENINGS)

SCALE: 1:20



C 301

SECTION

SCALE 1:20

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Comox Valley REGIONAL DISTRICT

DESIGN BY:	JVD	
DRAWN BY:	GMK	
APPROVED BY:		
DATE:	MARCH 31,2021	
SCALE:	AS SHOWN	

PROECT: COMPOST FACILITY

TITLE: COMPOST COMPOUND STRUCTURAL DETAILS

DRAWING NO: 20085 - 306

CONCRETE NOTES

CONCRETE MIXES

FOOTINGS & WALLS
INTERIOR SOG
EXTERIOR SOG

REINFORCING STEEL

CONCRETE SLABS

1. UNLESS OTHERWISE NOTED, THE QUANTITY OF MINIMUM TEMPERATURE REINFORCING IN SLABS SHALL BE AS SHOWN ON "SLAB TEMPERATURE, REINFORCING" NOTES.
2. UNLESS OTHERWISE NOTED, EDGE OF ALL SLABS SHALL HAVE 2~15M CONTINUOUS LAPPED 25"
3. ALL OPENINGS IN SLAB SHALL HAVE 2—15M BARS PARALLEL TO ALL EDGES EXTENDING BEYOND CORNERS 25°.
4. UNLESS OTHERWISE NOTED. SLAB REINFORCING SHALL NOT BE CUT AT PLUMBING OR OTHER OPENINGS. SPREAD REINFORCING AROUND OPENINGS,
5. SUPPORT SLAB BOTTOM REINFORCING ON SUFFICIENT SLAB BOLSTERS OR EQUIVALENT TO MAINTAIN CONCRETE PROTECTION AS SPECIFIED.
6. SUPPORT SLAB TOP REINFORCING ON HIGH CHAIRS AND/OR 15M SUPPORT BARS.WHERE REQUIRED. ALL BARS AND CHAIRS MUST BE SECURELY TIED TOGETHER. 15M BARS USED AS SUPPORT BARS SHALL BE CONSIDERED AS ACCESSORIES. PROVIDE SUFFICIENT CHAIRS AND SUPPORT BARS TO MAINTAIN CONCRETE PROTECTION AS SPECIFIED, AND TO MAINTAIN REINFORCING STEEL SECURELY IN PLACE DURING CONCRETE PLACEMENT.
7. LOCATIONS AND DETAILS OF CONSTRUCTION JOINTS TO BE SUBMITTED TO STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL, PRIOR TO CONSTRUCTION.
8. MIN. SLAB TEMPERATURE REINFORCING MINIMUM BOTTOM UNLESS NOTED OTHERWISE.

SLAB THICKNESS (INCHES) TEMPERATURE REINFORCING

5	10M @ 16"
6	10M @ 12"
8	15M @ 18"
10	15M @ 16"
12	15M @ 12"

STRIPPING NOTES

1. NO COLUMN OR WALL FORMS SHALL BE REMOVED BEFORE CONCRETE HAS REACHED 10 MPa.
2. STRENGTH OF CONCRETE FOR STRIPPING TO BE DETERMINED BY FIELD-CURED CYLINDERS.
3. RESHORING TO 8E APPROVED BY THE ENGNEER PRIOR TO STRIPPING
4. ALL SLABS, BEAMS, GIRDERS ETC. TO BE SHORED UNTIL CONCRETE REACHES DESIGN STRENGTH

LOCK BLOCKS

1. TBA

STRUCTURAL STEEL NOTES

1. ALL STEEL WORK TO BE IN ACCORDANCE WITH C.S.A. STANDARD CSA-S16.
2. STRUCTURAL STEEL TO HAVE Fy = 350 MPa EXCEPT HSS. Fy=380 MPa UNLESS NOTED OTHERWISE ON THE DRAWINGS.
3. ALL WELDING TO BE IN ACCORDANCE WITH C.S.A. WS9. FABRICATION SHOP TO HAVE FULL APPROVAL OF C.W.B, TO THE REQUIREMENTS OF CSA, W47. ALL WELDERS TO HAVE PASSED WITHIN THE PRECEEDING SIX MONTHS THE QUALIFICATION TEST AS SET FORTH WITHIN CSA. W47.
4. DO NOT FIELD BURN BASE PLATE HOLES OR CONNECTION BOLT HOLES. IF BOLT HOLES ARE MISALIGNED, INFORM ENGINEER.
5. STRUCTURAL STEEL CONTRACTOR TO PROVIDE ALL TEMPORARY BRACING REQUIRED STABILIZE THE STEEL FRAME UNTIL THE STRUCTURE IS COMPLETE.
6. PROVIDE SHOP DRAWINGS FOR ALL STRUCTURAL STEEL. SHOP DRAWINGS FOR STRUCTURAL STEEL AND FOR O,W.S.J. TO 8E SEALED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN BRITISH COLUMBIA
7. BOLTS SHALL BE A325 3/4" DIAMETER MINIMUM, UNLESS NOTED OTHERWISE ON THE DRAWINGS,
8. STEELWORK EXPOSED TO THE EXTERIOR TO BE PAINTED AS FOLLOWS (U.N.O.)

- SURFACE PREPARATION TO SSPC-SP—6. COMMERCIAL BLAST
- 1 COAT (5 MILS, THICKNESS) OF MARINE ALKYD METAL PRIMER (MASTER PAINTERS INSTITUTE PRODUCT NO.79).
- PRIMER TO BE COMPATIBLE WITH FINISHED PAINT SPECIFICATION.
- SEE ARCHITECTURAL FOR FINISHED PAINTING.
- FIELD TOUCH UP ABRASIONS AND PAINT BOLTS,
- BOLTS NOT PAINTED TO BE HOT DIP GALVANIZED
- ALL FIELD WELDS TO HAVE SLAG REMOVED PAINTED WITH GALVACON AND FINISH COAT.

PRE-ENGINEERED BUILDING

1. BUILDING MANUFACTURER SHALL BE CERTIFED IN ACCORDANCE WITH CAN/CSA-A660
2. TBA

FABRIC COVERED STRUCTURES

1. TBA

OVERHEAD DOORS

1. TBA

STEEL DOORS & WINDOWS

1. TBA

UTILITIES

1. CONTRACTOR SHALL CONTACT A SUBSURFACE UTILITY LOCATOR TO DETERMINE THE LOCATIONS OF ANY EXISTING UTILIIES PRIOR TO COMMENCEMENT OF CONSTRUCITON.
2. CONTRACTOR SHALL COORDINATE ALL UTILITY CONNECTIONS WITH APPROPRIATE AUTHORITIES.
3. ALL UTILIITES SHALL BE TESTED AND INSPECTED PRIOR TO BACKFILLING OR COVERING UP.

TESTING AND INSPECTION

1. TBA

PERMITS

1. TBA

SUBMITTALS & QUALITY CONTROL

1. TBA

AS BUILT DRAWINGS

1.

EXCAVATION & BACKFILL

1. TBA

GENERAL NOTES

1. THIS SET OF DRAWINGS SHOWS THE COMPLETED PROJECT. THEY DO NOT INCLUDE COMPONENTS THAT MAY BE NECESSARY FOR CONSTRUCTION SAFETY. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY IN AND ABOUT THE JOB SITE OURING CONSTRUCTION, AND THE DESIGN AND CONSTRUCTION, AND THE DESIGN AND ERECTION OF ALL TEMPORARY STRUCTURES, FORMWORK, FALSE WORK, SHORING, ETC. REQUIRED TO COMPLETE THE WORK.
2. THE USE OF THESE ORAWINGS IS LIMITED TO THAT IDENTIFIED IN THE REVISIONS COLUMN.
3. DESIGN CRITERIA:

LIVE LOADS

EXTERIOR SLABS ACCESSIBLE BY TRUCKS : GROUND FLOOR
SLAB NOT ACCESSIBLE BY TRUCKS : 100 kPA

SNOW LOADS
Ss —
Sr —

SEISMIC

S(0.2) -
Ie = 1.0
SITE CLASS = D
PGA -

WIND LOADS:
q50 = 5.7 kPA

4. THE GENERAL CONTRACTOR SHALL REVIEW ALL THE DRAWINGS AND CHECK DIMENSIONS BEFORE CONSTRUCTION. REPORT DISCREPANCIES BETWEEN STRUCTURAL AND OTHER DISCIPLINES DRAWINGS FOR CLARIFICATION,
5. CONCRETE WORK — SHALL CONFORM TO CSA — A23.1 AND REFERENCED DOCUMENTS.
6. STRUCTURAL STEEL WORK — SHALL CONFORM TO CSA~S16 ~ AND REFERENCED DOCUMENTS.
7. DO NOT CUT OR ORILL ANY OPENINGS IN STRUCTURAL MEMBERS WITHOUT WRITTEN PERMISSION OF CITY ENGINEERING INC.
8. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND LANDSCAPE DRAWINGS FOR LOCATIONS, CONFIGURATIONS, EXTENT, AND SIZES OF ALL CURBS, UPSTANDS, DOWNTURNS; AND FOR OPENINGS THROUGH FLOORS AND WALLS FOR DUCTS, CONDUIT AND PIPING. PROVIDE THE SAME.

9. ABBREVIATIONS:

ALT — ALTERNATE
HORIZ.— HORIZONTAL
VERT. - VERTICAL
R/W — REINFORCED WITH
C/W — COMPLETE WITH
SOG — SLAB ON GRADE
EF — EACH FACE
NTS.— NOT TO SCALE
TYP. — TYPICAL
H1E —HOOK ONE END
OC —ON CENTRE

FOUNDATIONS

1. TBA

PREPARED BY:

Weaver Tech
Science - Construction - Engineering

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Comox Valley REGIONAL DISTRICT

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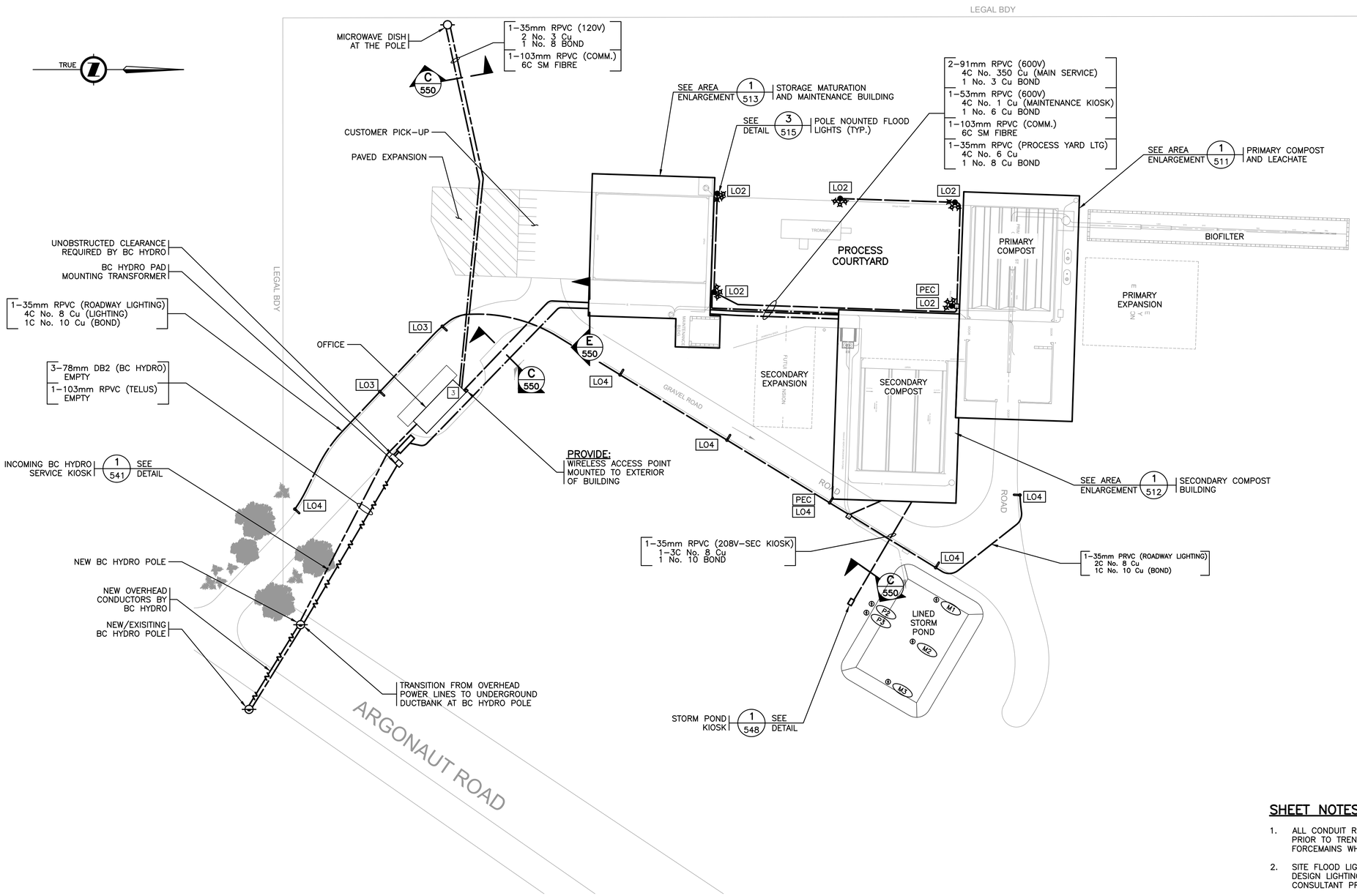
DRAWN BY:	GMK		
APPROVED BY:		TITLE:	GENERAL NOTES 2
DATE:			
SCALE:	AS SHOWN	DRAWING NO:	20085 - 307



SITE PLAN

0 1:750 50

SHEET NOTES:

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2. SITE FLOOD LIGHTING TO BE AIMED AS INSTRUCTED BY CONSULTANT TO ENSURE DESIGN LIGHTING AND SPILL LEVELS. CONTRACTOR TO COORDINATE AIMING PLAN WITH CONSULTANT PRIOR TO COMMISSIONING.

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CHECKED BY:	A. SOMMER	HORIZONTAL SCALE:	1:750
APPROVED BY:		VERTICAL SCALE:	1:750

CVRD TRANSFER STATION & COMPOST FACILITY DESIGN

SITE PLAN

DRAWING NO:	REV	SHEET
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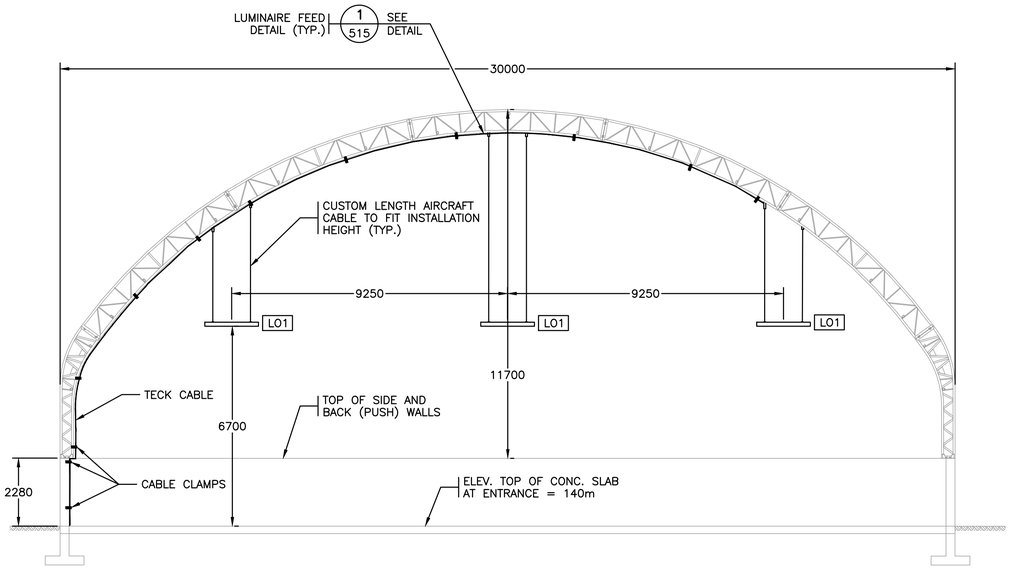
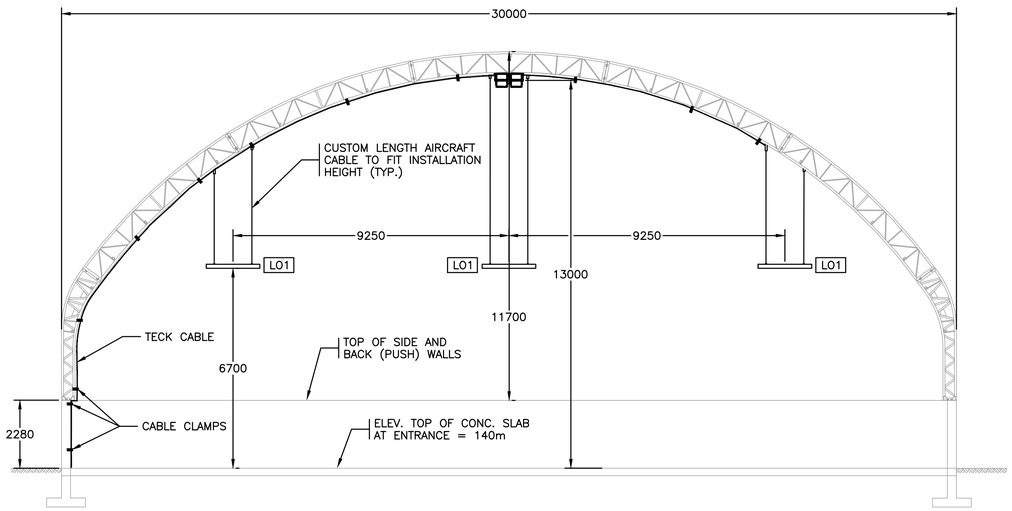


DETAIL 1:100 1 512 1 511 PRIMARY/SECONDARY COMPOST BUILDING PROFILE LIGHTING DETAIL

0 1:100 5



DETAIL 1:100 2 513 STORAGE BUILDING PROFILE LIGHTING DETAIL

0 1:100 5

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CVRD TRANSFER STATION & COMPOST FACILITY DESIGN

LIGHTING SCHEDULE AND INSTALLATION DETAILS SHEET (1/2)

DRAWING NO:	REV	SHEET
20085-514	C	514

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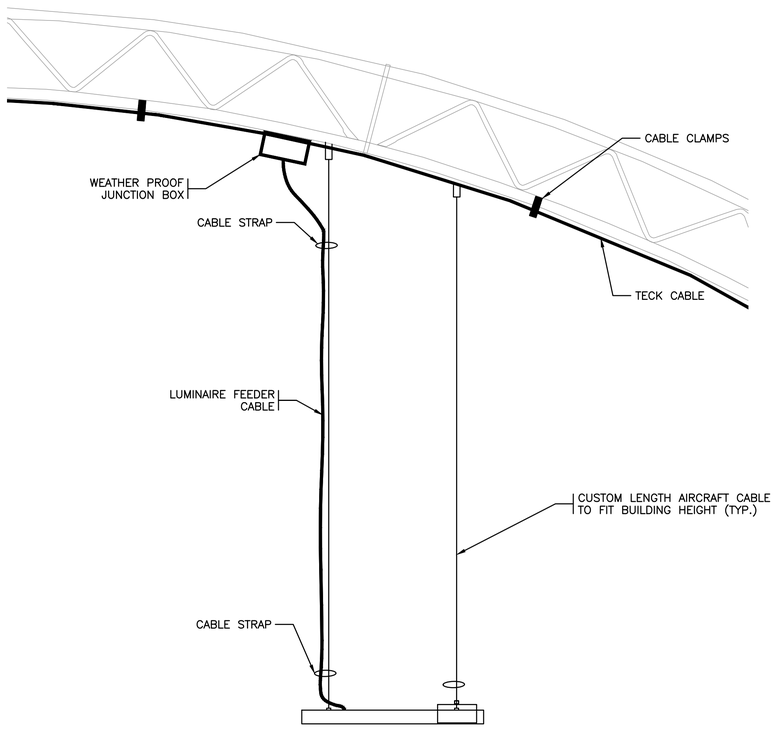
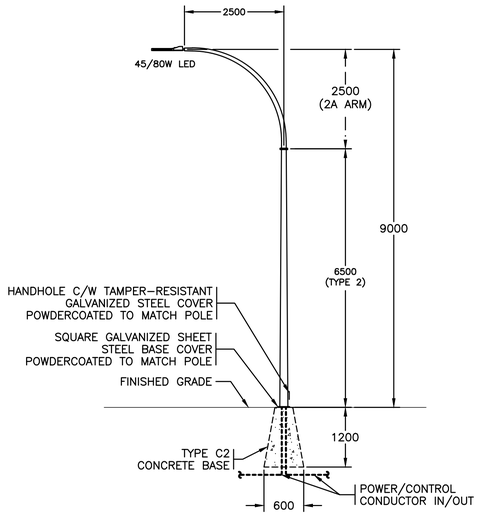


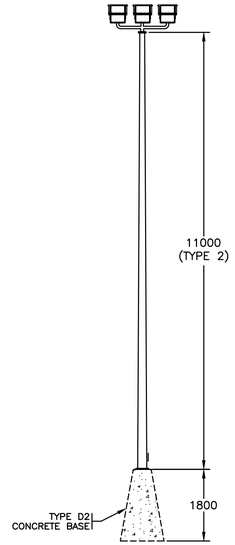
DETAIL 1/514 LUMINAIRE FEED DETAIL (TYP.)
1:50

0 1:50 2.5



DETAIL 2/510 LUMINAIRE POLE AND BASE DETAILS (TYP.)
1:75

0 1:75 5



DETAIL 3/– PROCESS YARD AND CUSTOMER PICKUP LUMINAIRE POLE AND BASE
1:75

0 1:75 5

NOTES:

1. PROVIDE SLIPFITTER BULLHORN FOR MOUNTING OF THREE LUMINAIRES COMPLETE WITH CUSTOM POLETOP ADAPTER.

LUMINAIRE SCHEDULE

LUMINAIRE DETAILS

TAG	DESCRIPTION	STANDARD OF ACCEPTANCE	CRI	DISTRIBUTION	WATTAGE	LUMENS (lm)	COLOUR TEMP. (K)	VOLTAGE	MOUNTING	NOTES	QUANTITY	LOCATION
L01	SUSPENDED HIGH BAY LUMINAIRE	DAY-BRITE HIGH BAY HBY24L835-UNV-W-BK	80	N/A	187	24000	3500	120	SUSPENDED	PROVIDE LUMINAIRE RATED FOR NATATORIUM ENVIRONMENTS. TO BE PROVIDED WITH BIRD SPIKES AND HANGING BRACKET FOR SUSPENSION IN CORROSIVE ENVIROMENTS. CONTRACTOR TO ALLOW FOR THE NECESSARY LENGTH OF AIRCRAFT CABLE FOR EACH LUMINAIRE TO SUIT INSTALLATION HEIGHT/INDICATED. LUMINAIRE TO BE PROVIDED WITH ALL NECESSARY HARDWARE/BRACKETS/ACCESSORIES REQUIRED FOR INSTALLATION.	37	BUILDING INTERIORS
L02	POLE MOUNT HIGH BAY LUMINAIRE	METEOR BOLT BLT-560-308-UNV-STV-60-BLK-BRK-SLP-OUT	85	N/A	560		3000	120	SLIPFITTER	TO BE INSTALLED AT THE SUGGESTED HEIGHT AND ANGLE TO PROVIDE THE REQUIRED LEVEL OF LIGHTING AS PER THE CALCULATION. PROVIDE COMPLETE WITH GLARE SHIELD VISOR	14	CUSTOMER PARKING AND TROMMEL WORK AREA
L03	DAVIT ARM MOUNT LED COBRA HEAD LUMINAIRES	PHILIPS ROAD FOCUS RFM-80W48LED3K-G2-4-UNV-DMG	-	TYPE IV	80	10414	3000	120	POLE		2	ACCESS ROAD
L04	DAVIT ARM MOUNT LED COBRA HEAD LUMINAIRES	PHILIPS ROAD FOCUS RFM-45W16LED3K-G2-R3M-UNV-DMG	-	TYPE III MEDIUM	45	5141	3000	120	POLE		6	ACCESS ROAD

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LIGHTING SCHEDULE AND INSTALLATION DETAILS SHEET (2/2)

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MegaDome
BY BUILDWORKS

DESIGN GUIDE

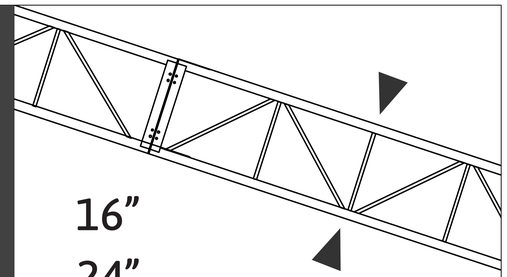
TRUSS DIMENSIONS

TRUSS CHORDS

LD - 2 3/4 x 1 5/8	14 ga
HD - 3 9/16 x 2	14 ga
HHD - 4 5/16 x 2 3/4	14 ga 11 ga*
100 - 5 5/16 x 3	8 ga*

** Denotes hot-dip galvanized*

TRUSS DEPTH

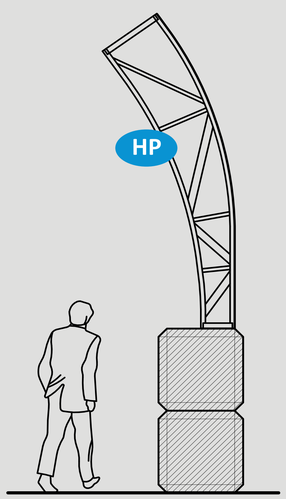


16”
24”
30”
33”

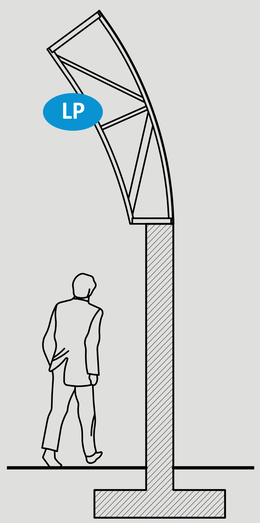
FABRIC COLORS

Beige
White
Silver
Red
Green
Blue

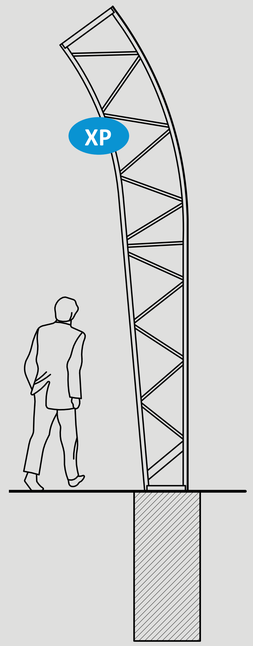
FOUNDATIONS



LockBlock Precast Concrete



Poured Concrete Footing & Wall



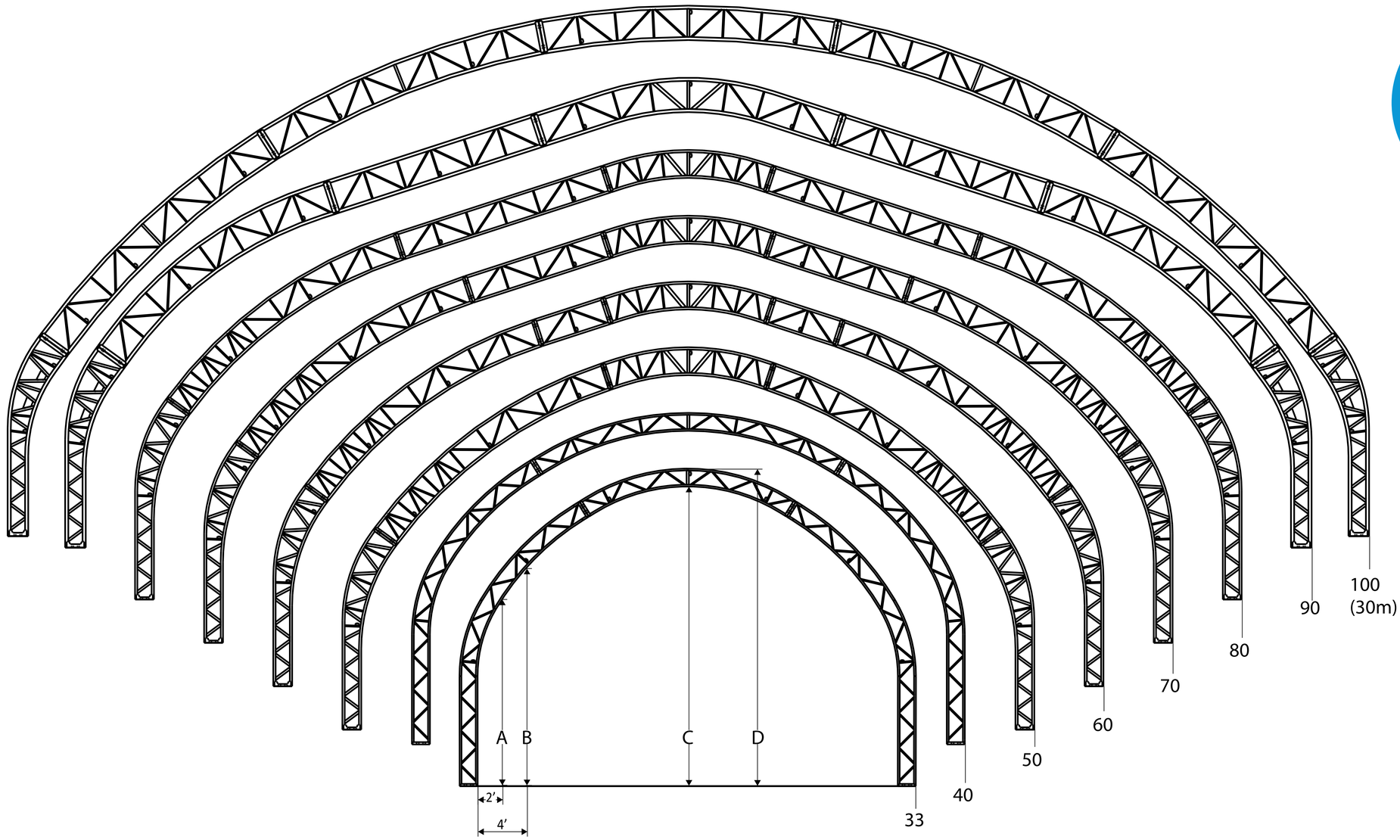
Concrete Piers

Slab on Grade with Grade Beam

XP HIGH PROFILES

LD & HD		33		40		50		60		70		80	
A (2')		13'11		13'11		12'7"		12'7"		12'7"		12'7"	
B (4')		16'4"		16'4"		15'3"		15'3"		15'3"		15'3"	
C		21'9"		22'9"		25'9"		27'5"		29'0"		30'8"	
D		21'9"		24'1"		27'9"		29'5"		31'0"		32'8"	
base	truss	16"	16"	16"	16"	16"	24"	16"	24"	16"	24"	16"	24"

HHD		60		70		80		90		100		130	
A (2')		11'9"		11'9"		11'9"		11'9"		11'8"		17'1"	
B (4')		14'8"		14'8"		14'8"		14'8"		14'7"		20'3"	
C		26'9"		28'5"		30'0"		31'8"		36'0"		50'1"	
D		29'3"		30'11"		32'6"		34'2"		38'6"		52'7"	
base	truss	17"	30"	17"	30"	17"	30"	17"	30"	17"	30"	17"	30"

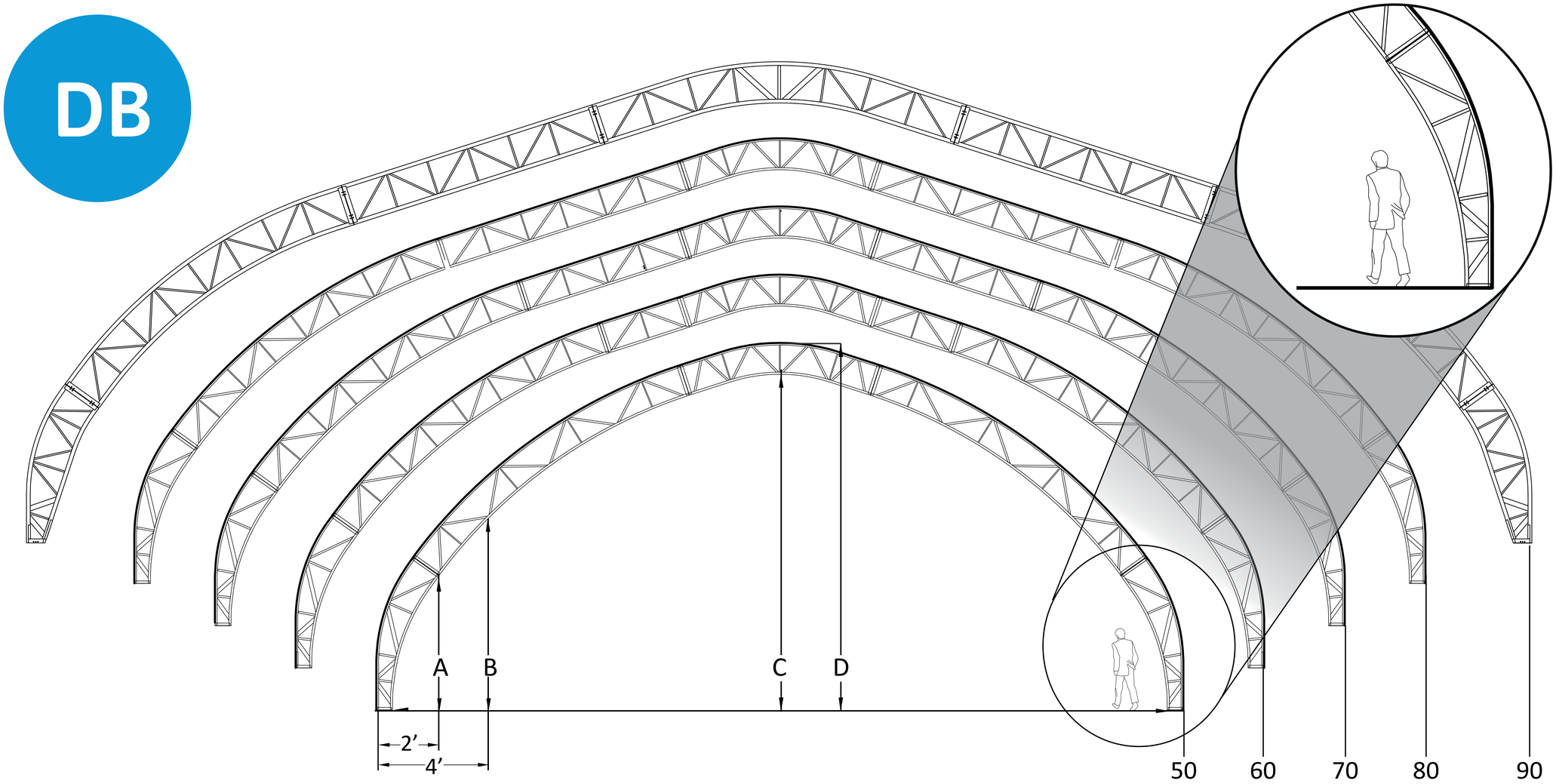


HP HIGH PROFILES

LD & HD		50		60		70		80	
A (2’)		7’2”		7’2”		7’2”		7’2”	
B (4’)		9’10”		9’10”		9’10”		9’10”	
C		20’9”		22’4”		24’0”		25’7”	
D		22’9”		24’4”		26’0”		27’7”	
base	truss	13”	24”	13”	24”	13”	24”	13”	24”

HHD		60		70		80		90	
A (2’)		6’1”		6’1”		6’1”		6’1”	
B (4’)		9’3”		9’3”		9’3”		9’3”	
C		21’9”		23’5”		25’		26’8”	
D		24’3”		25’11”		27’6”		29’2”	
base	truss	13”	30”	13”	30”	13”	30”	17”	30”

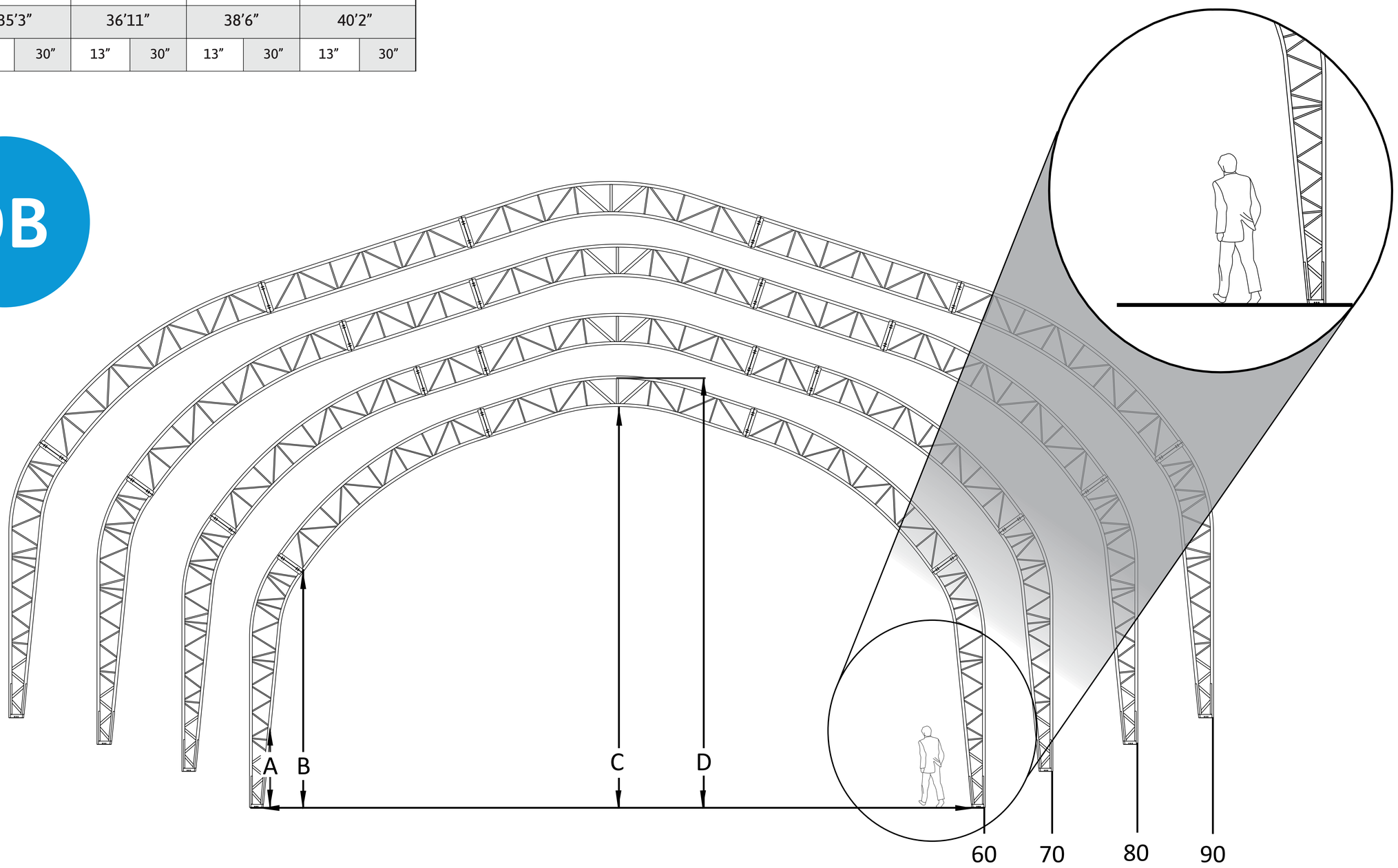
DB



XXP EXTRA HIGH PROFILES

HHD		60		70		80		90	
A (2')		17'1"		17'1"		17'1"		17'1"	
B (4')		20'3"		20'3"		20'3"		20'3"	
C		32'9"		34'5"		36'0"		37'8"	
D		35'3"		36'11"		38'6"		40'2"	
base	truss	13"	30"	13"	30"	13"	30"	13"	30"

DB



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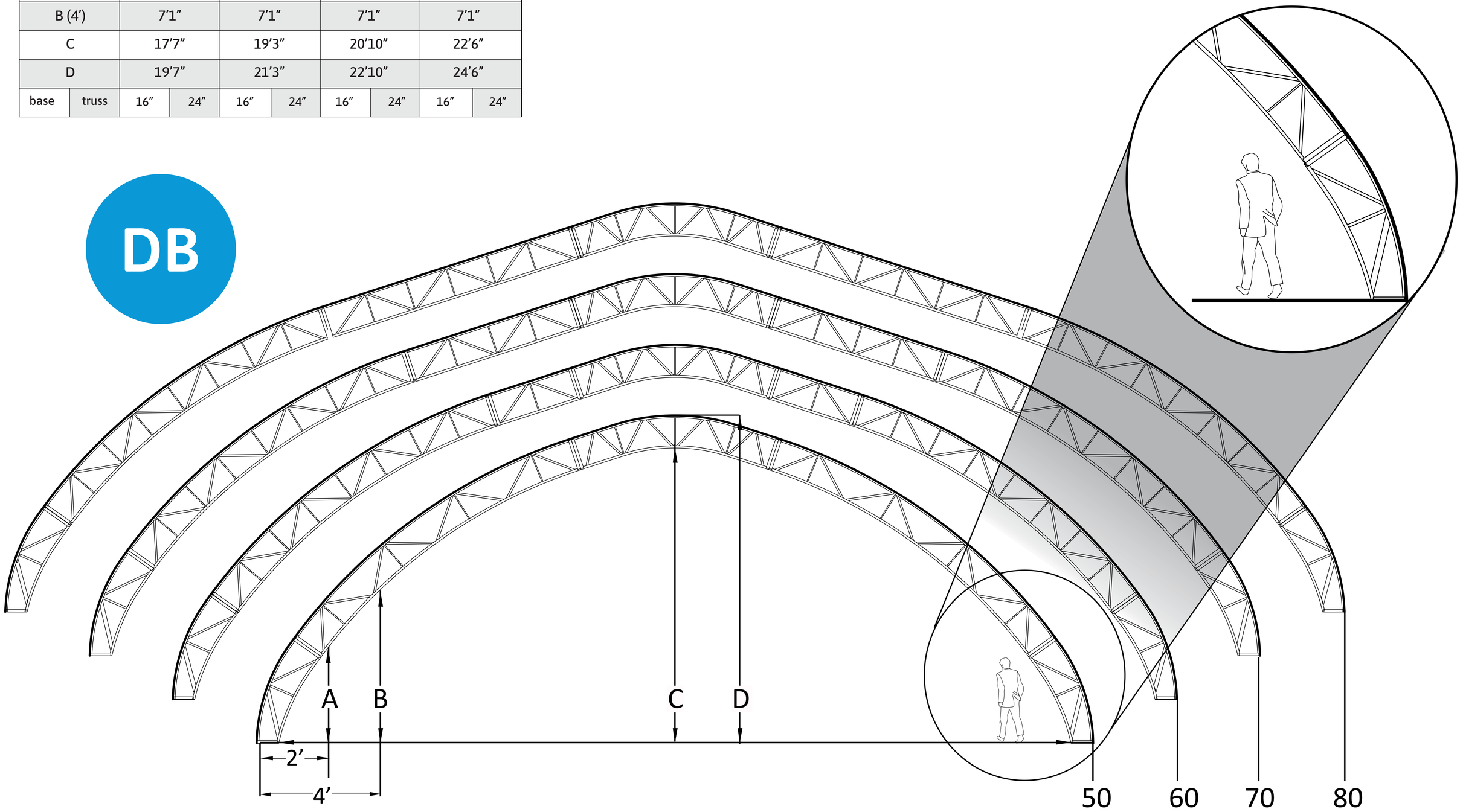
LP LOW PROFILES

HD		50		60		70		80	
A (2')		4'6"		4'6"		4'6"		4'6"	
B (4')		7'1"		7'1"		7'1"		7'1"	
C		17'7"		19'3"		20'10"		22'6"	
D		19'7"		21'3"		22'10"		24'6"	
base	truss	16"	24"	16"	24"	16"	24"	16"	24"

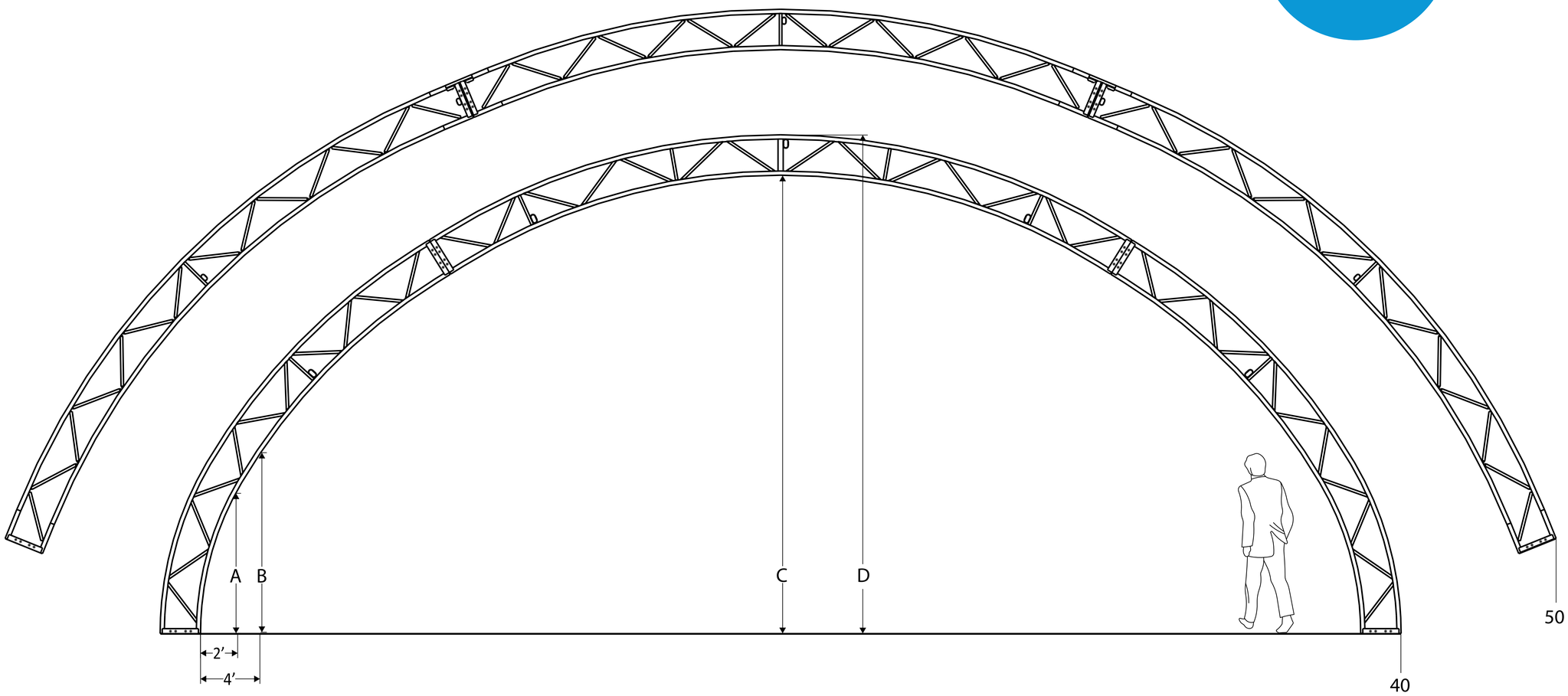
DB



XL EXTRA LOW PROFILES

LD		40		50	
A (2’)		6’0”		6’0”	
B (4’)		8’6”		8’6”	
C		14’11”		14’11”	
D		16’3”		16’3”	
base	truss	16”	16”	16”	16”

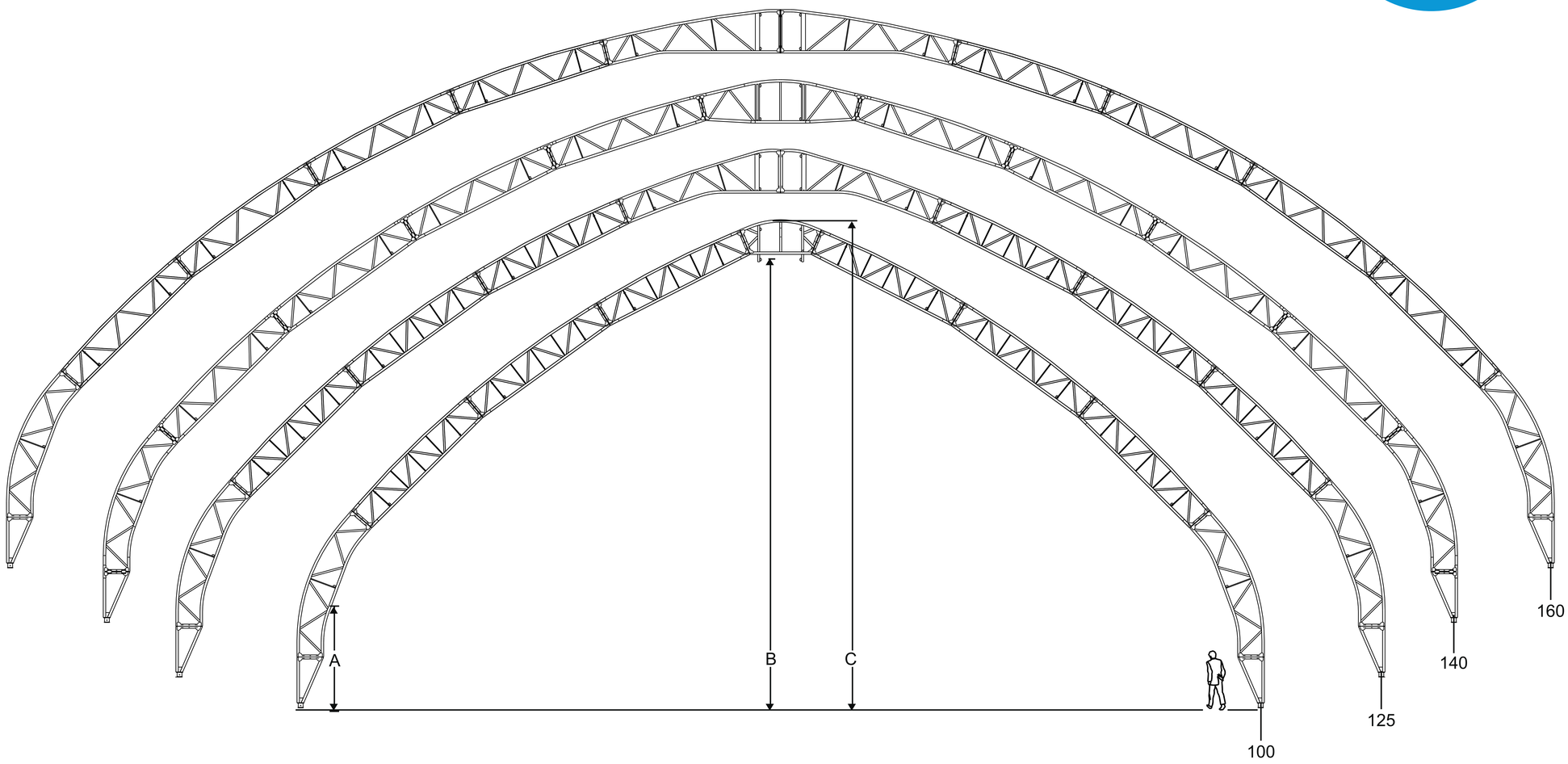
DB



CS SERIES

		100		125		140		160	
A (4’)		17’6”		17’6”		17’6”		17’6”	
B		46’11”		50’0”		51’8”		53’1”	
C		50’6”		54’7”		56’2”		57’7”	
base	truss	7”	33”	7”	33”	7”	33”	7”	33”

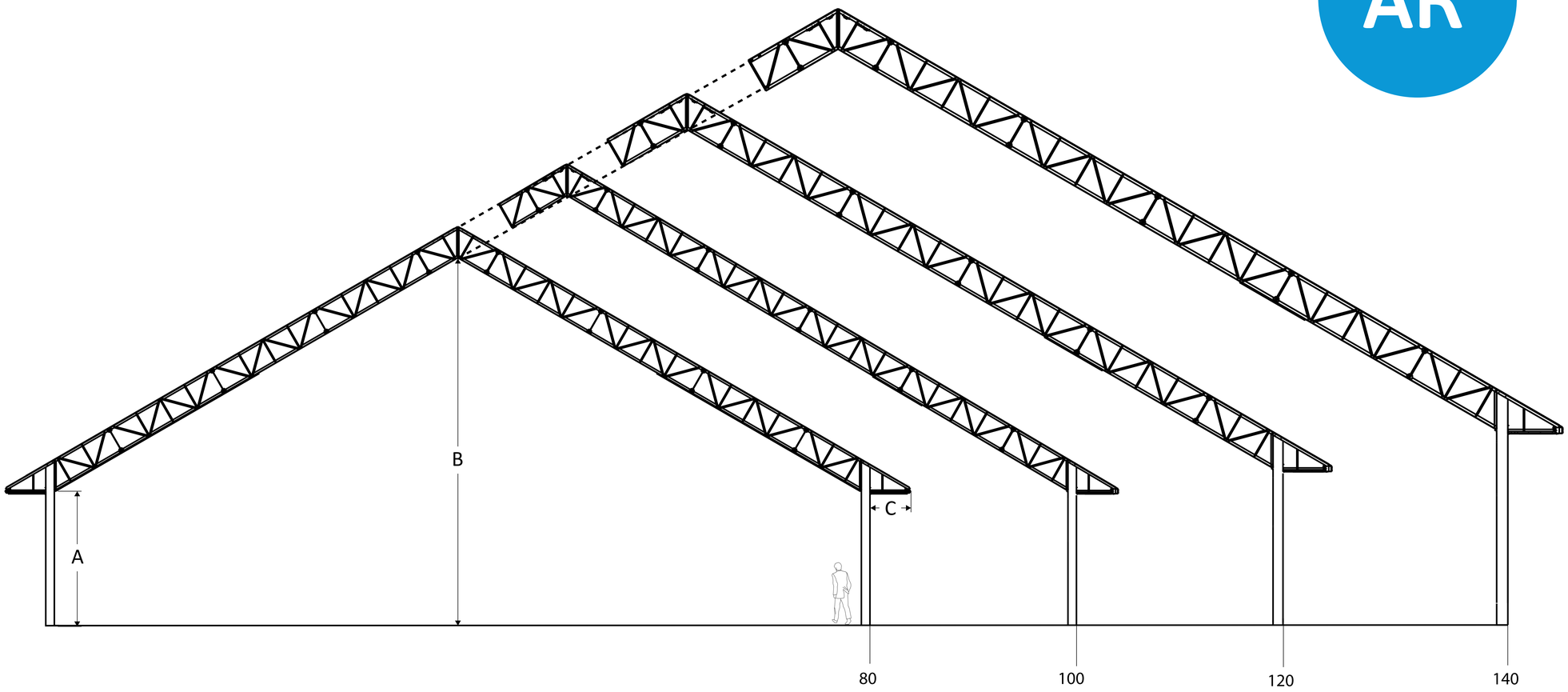
CS



AR SERIES

BLDG WIDTH	A (HEIGHT)	B (HEIGHT)	C (WIDTH)
80’ - 140’	14’ to 50’	30’ to 90’	2’ to 6’

AR



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Unit 3 – 431 Mountain Hwy
North Vancouver BC V7J 2L1
Phone: (778) 233-3009

Attention: Cole Makinson
Manager of Capital Projects
Comox Valley Regional District

Date: 2021-04-09

Re: Opinion of Cost for Native Species Landscaping at Entrance Gate of Campbell River Composting Facility

1 Scope of Work

The following is a scope of work and opinion of cost has been provided in support of proposed landscaping of entry way to an industrial compost facility located at 6300 Argonaut Road Campbell River BC. The existing gate / entry way is shown in the image below.

The theme proposed for the entry way is to carry on native vegetation buffer prescriptions and provide an appearance that best blends in with the natural landscape.

This will include a mixed species plant mix of native Douglas Fir and Native shrubs Salal as an understory. Both species will be planted at a 2m spacing, Salal is expected to fill in gaps within only 2 growing seasons and invasive species will be managed as needed during that time span. Imported topsoils and ground wood and top soils will be used in addition to underlying landscape fabric to prevent completion of other pioneer species and weeds. The attached schematic outlines the approved landscape plan including stem count and prescribed preparation and spacing.

2 Opinion of Cost

Based on available information and rationale described in this proposal, the works detailed herein at the Site will be performed on a time and materials basis. Table 4-1 provides details of the estimated costs to complete this scope of work. The proposed cost for this work is $14,815 (excluding GST).

Table 4-1. Estimated Baseline ESA Costs

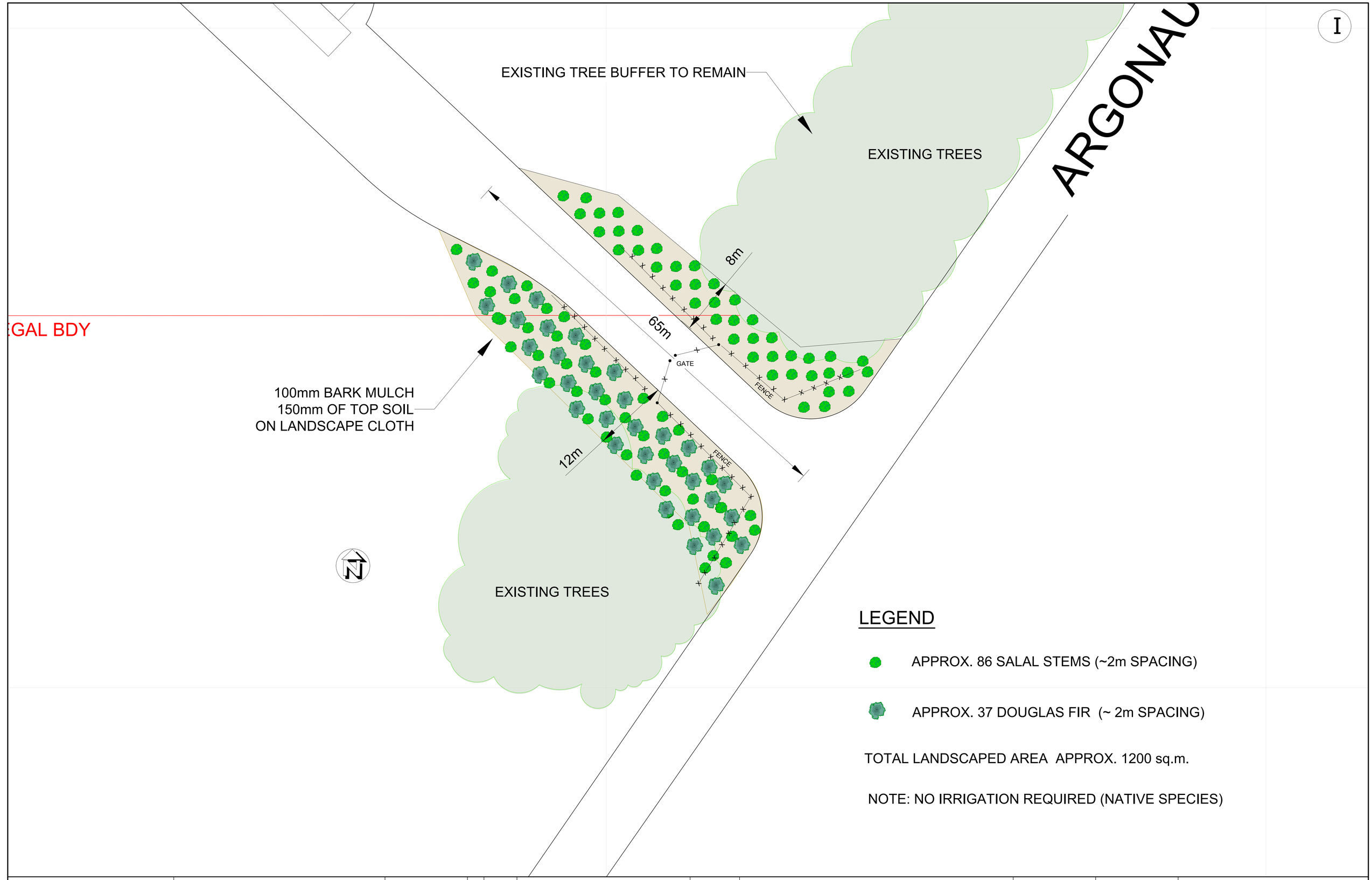
Task	Estimated Cost
Clear and Grub 1300m^2 (dispose invasive species and grubbed material at compost facility for treatment)	$1,300
Shape and Grade Gentle Slopes, 1300m2 average fill 0.5m, 650m3 @$10/m3 sourced onsite	$6,500
Landscape Cloth, 46 rolls $120/roll installed	$5,520
Top Soil and Bark Mulch 260 yds^3 $60/yd	$15,600
Transplanting Salal 86 stems, Planting/ Purchase Fir Saplings ($6/tree x 37) + Labour and sapling protectors, water at time of planting $5,000.	$5,222
Total	**$34,142**

3 Closing

We look forward to supporting with this scope of work. Please contact the undersigned if any questions (tim@weavertechnical.com).

Regards,

Tim Weaver, B.Sc., B.Tech., R.P.Bio, EP



LEGEND

- APPROX. 86 SALAL STEMS (~2m SPACING)
- APPROX. 37 DOUGLAS FIR (~ 2m SPACING)

TOTAL LANDSCAPED AREA APPROX. 1200 sq.m.

NOTE: NO IRRIGATION REQUIRED (NATIVE SPECIES)

PREPARED BY:

Weaver Tech
Science - Construction - Engineering

SEAL

NO.	DATE	REVISIONS	BY
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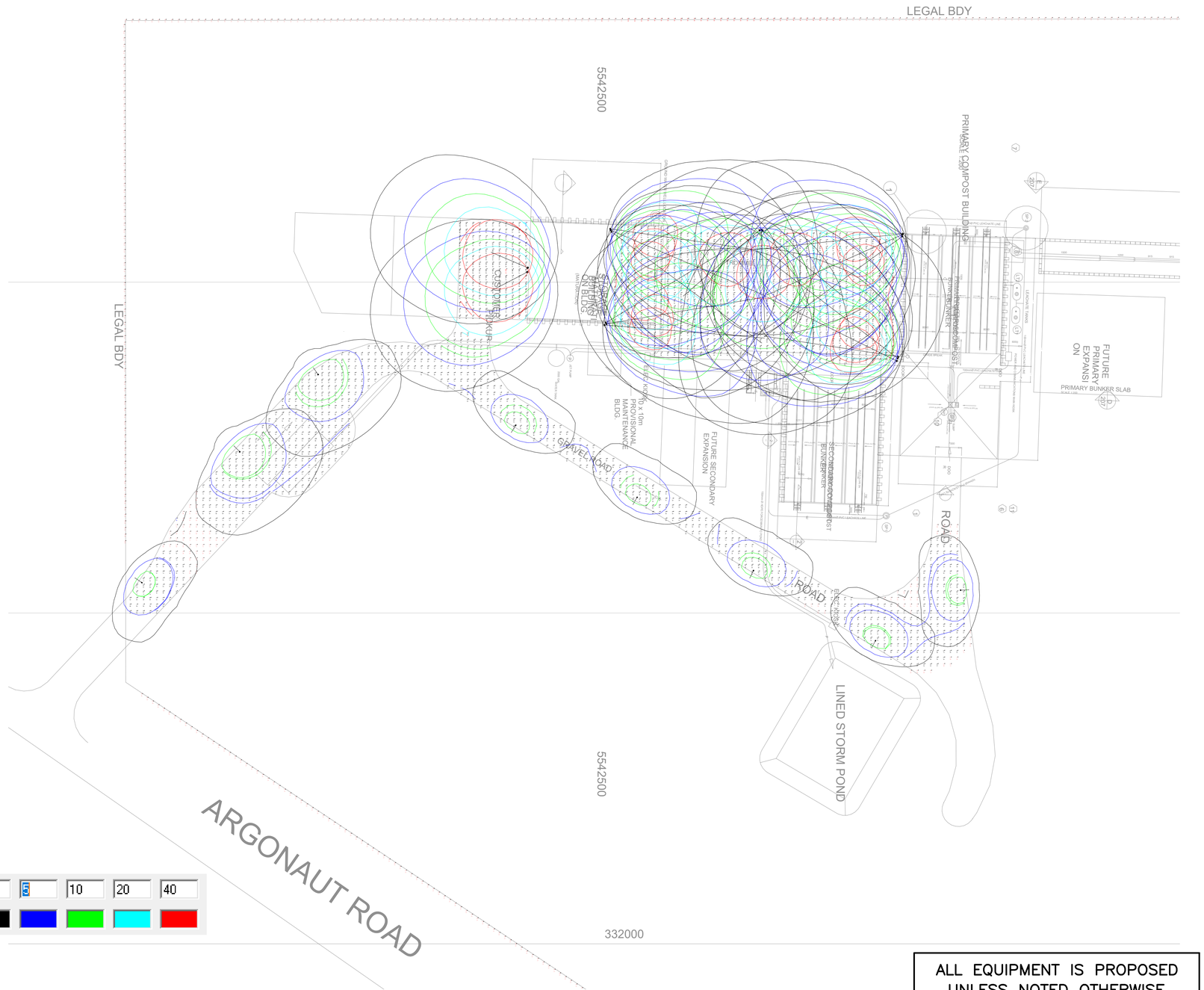
Comox Valley
REGIONAL DISTRICT

DESIGN BY:	TW	PROECT:	COMPOST FACILITY
DRAWN BY:	GMK		
APPROVED BY:		TITLE:	LANDSCAPING
DATE:	MARCH 31,2021		
SCALE:	AS SHOWN	DRAWING NO:	20085 - 213



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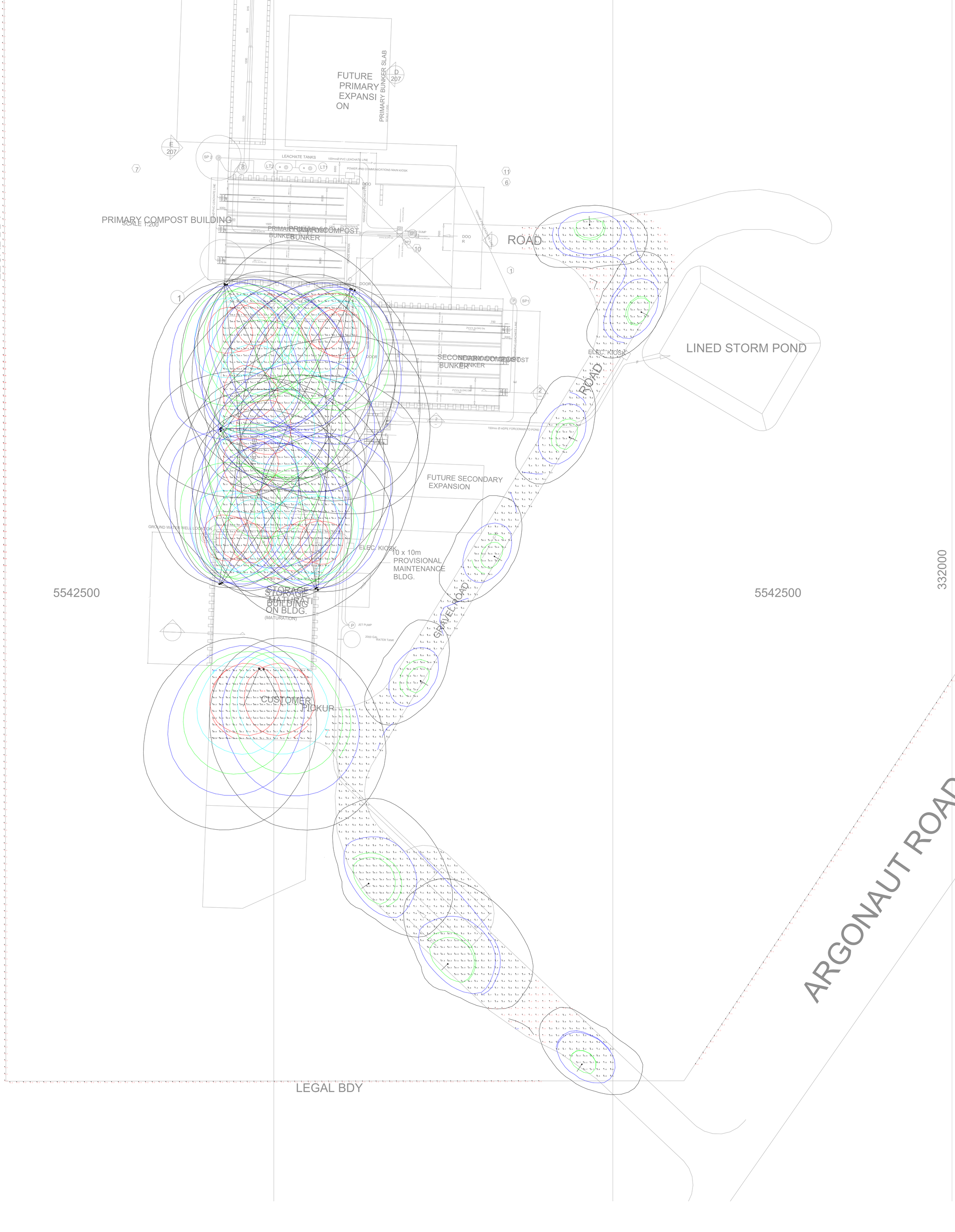
LIGHTING SPILL

DRAWING NO:	REV	SHEET
ESK-1	C	ESK-1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FUTURE PRIMARY EXPANSION
PRIMARY BUNKER SLAB
SCALE 1:200
E 207
D 207
LEACHATE TANKS
100mmØ PVC LEACHATE LINE
POWER AND COMMUNICATIONS MAIN KIOSK
PRIMARY COMPOST BUILDING
PRIMARY COMPOST BUNKER
ROAD
LINED STORM POND
SECONDARY COMPOST BUNKER
ELEC. KIOSK
150mm Ø HDPE FORCEMAIN TO POND
FUTURE SECONDARY EXPANSION
GROUND WATER WELL LOCATION
10 x 10m PROVISIONAL MAINTENANCE BLDG.
STORAGE MATURATION BUILDING
(MATURATION)
JET PUMP
2000 GAL WATER TANK
CUSTOMER PICKUP
GRAVEL ROAD
5542500
332000
ARGONAUT ROAD
LEGAL BDY

April 22nd, 2021

Cole Makinson, P.Eng.
Manager of CSWM Projects
Comox Valley Regional District
600 Comox Road
Courtenay, BC

Re: Addendum to the Amended Summary of the Bio-physical Assessment for 6300 Argonaut Road (PID 012-445-651), Campbell River, BC

Dear Mr. Makinson,

A biophysical assessment was completed on September 11th, 2019 at your request for the proposed Comox Valley Composting Facility located at 6300 Argonaut Road in Campbell River, BC. The purpose of the assessment was to identify any Environmentally Sensitive Areas as per the requirements of the City of Campbell River's Official Community Plan[1] (OCP) as well as determine if any watercourses are applicable to the Riparian Area Regulation (RAR). The biophysical assessment was submitted as part of the development permit application for the facility prior to the preparation of finalized site layout and development drawings.

Since the time of the assessment and original submission, the *Riparian Areas Protection Act* and RAR (now the Riparian Area Protection Regulation, or 'RAPR) have undergone changes (as of November 1st, 2019). As such, results of the assessment were re-examined in April 2021 under the updated legislation to identify any changes that may have occurred (see Pages 2 and 3 of assessment report).

In addition, following review by the City of Campbell River ('the City'), the biophysical assessment report has been amended to include the finalized site plans and to address comments received from the City of Campbell River following initial review of the application. Amendments made to the report include:

- Comments on the new site plan (Page 12 of the assessment report);
- Records listed in the BC Conservation Data Centre (Page 4 of the assessment report); and
- Data obtained from a search of the Ministry of Environment's BC Species and Ecosystems Explorer for the categories "plants and animals" and "Ecological Communities", including all potential red listed, blue listed, and SARA listed

species along with their Conservation Framework priority (Page 4 and Appendix 2 of assessment report).

Should you have any questions, concerns, or comments regarding the information presented in this letter, please do not hesitate to contact our office directly at 250-286-0005.

Sincerely,

Serena Johnston, BIT, BSc,
Pacificus Biological Services Ltd.

September 26th, 2019
Amended April 22nd, 2021

Cole Makinson, P.Eng.
Manager of CSWM Projects
Comox Valley Regional District
600 Comox Road
Courtenay, BC

Re: Summary of the Bio-physical Assessment for 6300 Argonaut Road, (PID 012-445-651) Campbell River, BC

Dear Mr. Makinson,

I am writing to summarize the findings of the environmental assessment that was completed on September 11th, 2019 at your request for the proposed Comox Valley Composting Facility located at 6300 Argonaut Road in Campbell River, BC. Following the initial assessment, a bird and nest survey was conducted on September 18th, 2019. The purpose of the assessment was to identify any Environmentally Sensitive Areas as per the requirements of the City of Campbell River's Official Community Plan[1] (OCP) as well as determine if any watercourses are applicable to the Riparian Area Regulation (RAR).

Background

The proposed development at 6300 Argonaut Road includes vegetation clearing, construction of a storm water retention pond, compost facility buildings, storage buildings and a biofilter. Approximately two thirds of the development area have been cleared prior to this assessment and a retention pond has been constructed but has no evidence of having had any water flow. The remainder or the property consists of mature second growth conifers. A small portion of the area proposed for the development exists within a Streamside Development Permit Area as identified by the City of Campbell River Official Community Plan webmap[2]. A requirement of the City of Campbell River's Streamside Development Permit is to have an environmental assessment conducted by a Qualified Environmental Professional (QEP) if the property is located

[1] City of Campbell River, Sustainable Official Community Plan
[2] City of Campbell River, Sustainable Official Community Plan webmap – http://www.campbellriver.ca/city-services/maps/socp-map---terms-of-use Accessed September 25th, 2019.

within 50m of an identified stream or 30m of an identified ditch. The city has adopted the *Riparian Areas Protection Act* and by extension the Riparian Area Regulation (RAR)[3]. The Riparian Assessment Area (RAA) under RAR is defined as 30m perpendicular to the stream channel measured from the high water mark. The RAA area will encompass potential Streamside Enhancement and Protection Areas (SPEAs), and Zones of Sensitivity (ZOSs) for the watercourse.

Since the time of the original assessment, changes have occurred to the *Riparian Areas Protection Act* and RAR (now the Riparian Area Protection Regulation or 'RAPR'). As such, results of the original assessment were re-examined in April 2021 to take into account any changes that may have been triggered by the updated legislation.

Methods

The site assessment considered the Riparian Area Regulations (RAR) and the City of Campbell River's Sustainable Official Community Plan. The site visit was conducted on foot of the entire proposed development area as well as the Streamside Development Permit Area located adjacent to the development area. The site was surveyed for any watercourses, environmentally sensitive areas, and eagle, raptor or heron nests. A second nest survey was conducted on September 18th, 2019. This site visit consisted of walking the development area with binoculars and an aerial survey using a drone. Five transects were flown with the drone to obtain aerial imagery of the forested development area. Weather on the dates of assessment were overcast to clear with light rain occurring for 2 days prior to the assessment on September 11th, 2019.

Results

North Argonaut Road Ditch

A portion of the North Argonaut Ditch was identified on the OCP map as a stream (Figure 1). The feature was a shallow roadside ditch along the northwestern side of Argonaut Road. The ditch was 100% vegetated with grass and showed very limited and sporadic evidence of flow. The

[3] Ministry of Forests, Lands, and Natural Resources Operations. 2016. Riparian Areas Regulation. Available from http://www.bclaws.ca/civix/document/id/complete/statreg/376_2004 Accessed May 6th, 2019.

point of commencement (POC) for the assessment of Watercourse 1 was located 465m downslope of the entrance to the composting facility. This watercourse was assessed upslope for 465m to a point where the ditch was no longer present and did not continue upslope. The average width of the ditch was 1.2m and gradient was 1%. The ditch was shallow with a maximum depth of 40cm. At the POC the ditch passed through a driveway culvert. Between the POC and the western property boundary the ditch showed no evidence of surface flow. At 0+180m the ditch passed through a driveway culvert approximately 50m east of the western property boundary. Substrate at the culvert outlet consisted of loose sand and no evidence of previous surface flow at the inlet or outlet was observed. At 0+275m the confluence with a newly excavated ditch from the detention pond was present on the northwest bank. No evidence of surface flow from the detention pond was observed. Between 0+180m and 0+465m, there was evidence of limited and sporadic, surface flow within the ditchline. At 0+465m the assessment was terminated where the ditch was no longer present upslope.

Although there is evidence of surface flow within the ditch, flow is sporadic and limited and consistently dissipated into the ground. The ditch within the applicable development area does not connect via surface flow to an RAR applicable watercourse. Based on this evidence the assessed portion of North Argonaut Road Ditch is not applicable under RAR.

Amendments to the RAR (now referred to as the Riparian Area Protection Regulation or 'RAPR') came into effect as of November 1st, 2019. However, these amendments were determined to have no effect on the results of the original assessment conducted. In addition, the finalized site plans for the proposed development received in 2021 (Figures 3 and 4) have been reviewed and do not conflict with the results presented in this report.

Mapped Feature 2

Mapped Feature 2 was identified on the CVRD web-mapping services as a ditch parallel to the North Argonaut Road Ditch (Figure 1). This area was surveyed extensively, and this feature was not located in the field within 30m of the proposed development, therefore this feature is not applicable under RAR.

Bird Survey

The development area was assessed for nesting birds including migratory songbirds, herons, eagles and other raptors on September 11th, 2019. A second ground search was conducted on September 18th, 2019. This search consisted of walking the development area with binoculars to identify nests or territorial behaviour. An aerial search was also completed using video obtained from a drone flight. Five transects were flown to cover the development area and surroundings within 60m (Figure 3). No nests were identified within the search area.

Species at Risk

A search of online databases, including the BC Species & Ecosystems Explorer[4] and the BC Conservation Data Center (CDC),[5] indicated that a total of 230 federally and/or provincially listed species have the potential to be present within the vicinity of the proposed development. A complete list of species with the potential to be present in the vicinity of the proposed development (as per the BC Species & Ecosystems Explorer) has been included in Appendix 2. BC CDC data records are not publicly available for the proposed development location; however, a request has been sent to the BC CDC to access this information. No federally or provincially listed species or ecosystems were noted at the time of assessment.

Conclusion and Suggested Measures

An assessment of 6300 Argonaut Road was conducted at the proponent's request in order to identify any watercourses applicable under RAR as well as other Environmentally Sensitive Areas as determined by the City of Campbell River OCP. Two features as mapped by the City of Campbell River surveyed on September 11th, 2019. One ditch located on the northwest side of Argonaut Road. Mapped Feature 2 was not located in the field within the proposed development permit area and is not applicable under RAR. The North Argonaut Road Ditch does not connect

[4]BC Species & Ecosystems Explorer. https://a100.gov.bc.ca/pub/eswp/ Accessed April 21st, 2021.
[5]BC Conservation Data Center iMap. http://maps.gov.bc.ca/ess/hm/cdc/ Accessed April 21st, 2021.

via surface flow to an RAR applicable watercourse and therefore the development is outside of the Riparian Assessment Area (RAA).

Watercourse 1 is not currently applicable under RAR; however, a storm water management plan should be developed to address any additional flows from the proposed storm water retention ponds that may result in surface flow to fish habitat.

The development area was surveyed for raptor, bald eagle and great blue heron nests. Two ground searches and an aerial survey were conducted, and no nests were identified. Timing of clearing activities must be considered with respect to nesting birds. Vegetation clearing should be conducted outside of the breeding window for raptors and migratory songbirds (March 12th to August 11th). Depending on the development activity, additional nesting surveys may be required if clearing is to take place within this window. Measures to protect potential nests of migratory birds, herons or raptors are outlined in the Environmental Mitigation Plan (EMP).

If you have any questions or concerns regarding this letter, please do not hesitate to contact our office directly at 250-286-0005.

Sincerely,

Serena Johnston, BSc.
Pacificus Biological Services Ltd.

Reviewed By:

COLLEGE OF APPLIED BIOLOGY
DEREK LeBOEUF
R.P. Bio 2122
CAB

Derek LeBoeuf, RPBio
Pacificus Biological Services Ltd.

Amendments Reviewed By:

COLLEGE OF APPLIED BIOLOGY
Marissa Miles
R.P. Bio 3608
CAB

Marissa Miles, RPBio
Pacificus Biological Services Ltd.

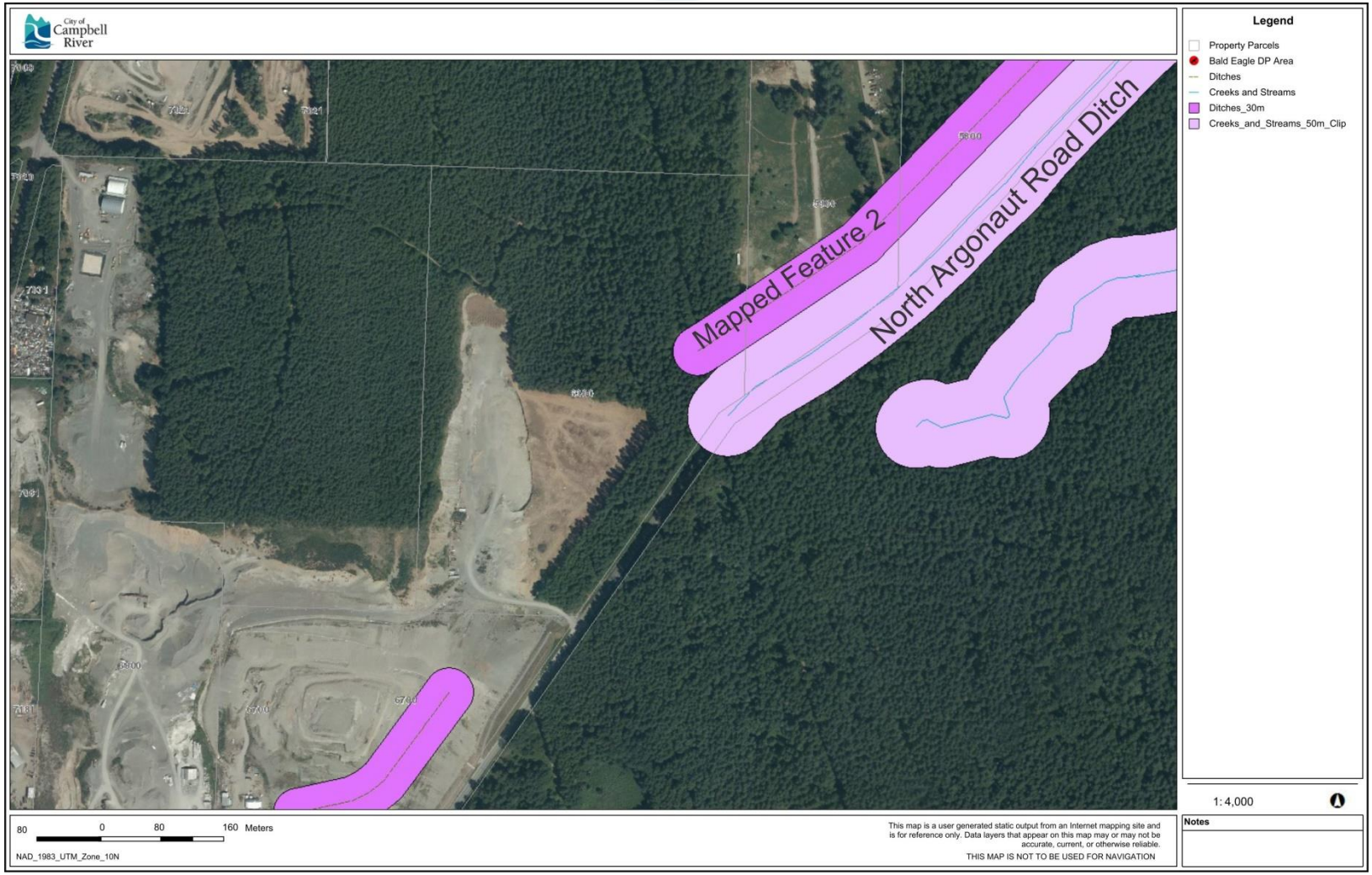


Figure 1. City of Campbell River OCP webmap of 6300 Argonaut Road showing the location of the mapped features and the Streamside Development Permit Area.

Figure 2. Map of the subject property, proposed development area (in yellow) and location of North Argonaut Road Ditch.

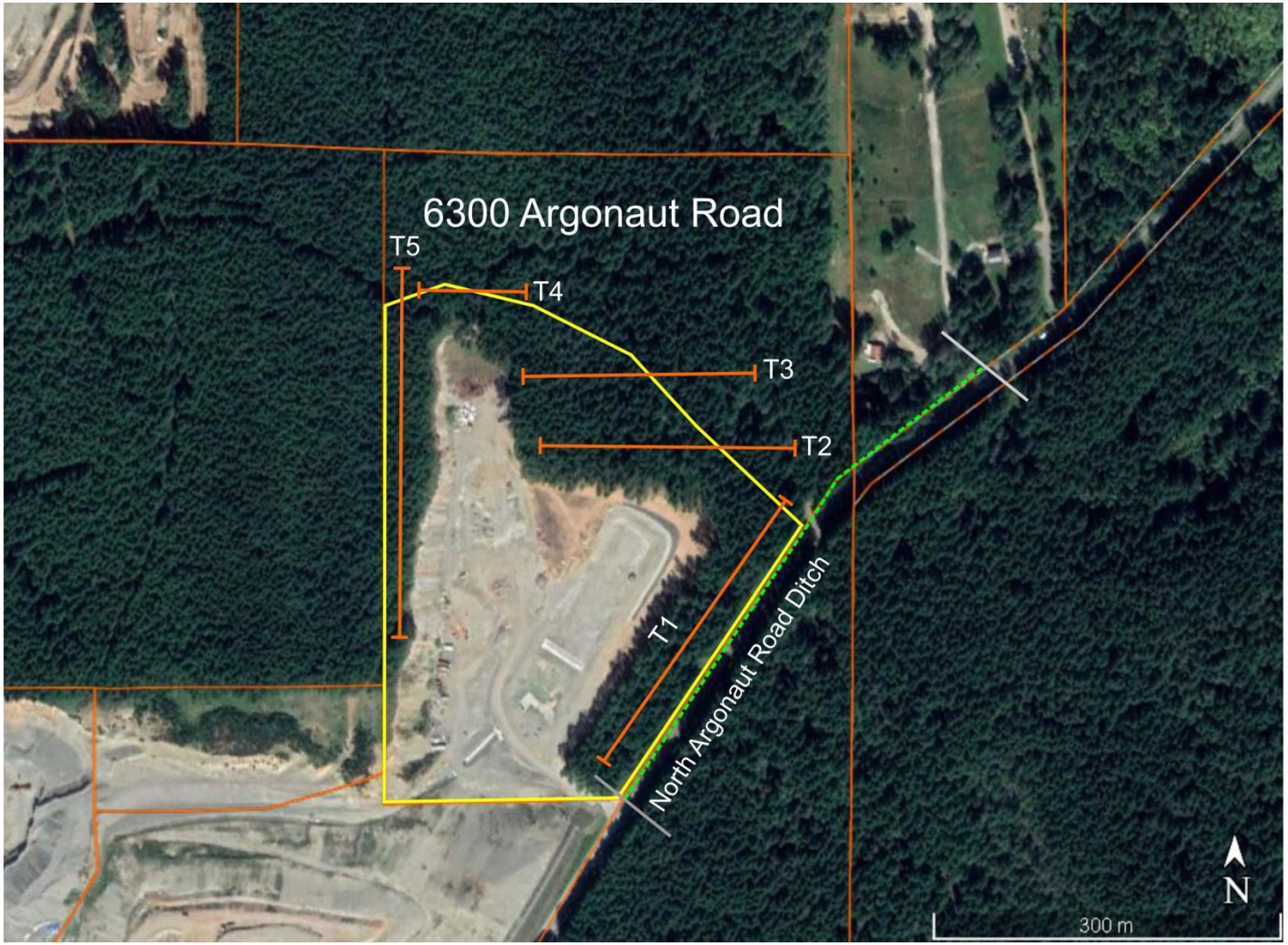


Figure 3. Map of the drone flight transects (September 18th, 2019).

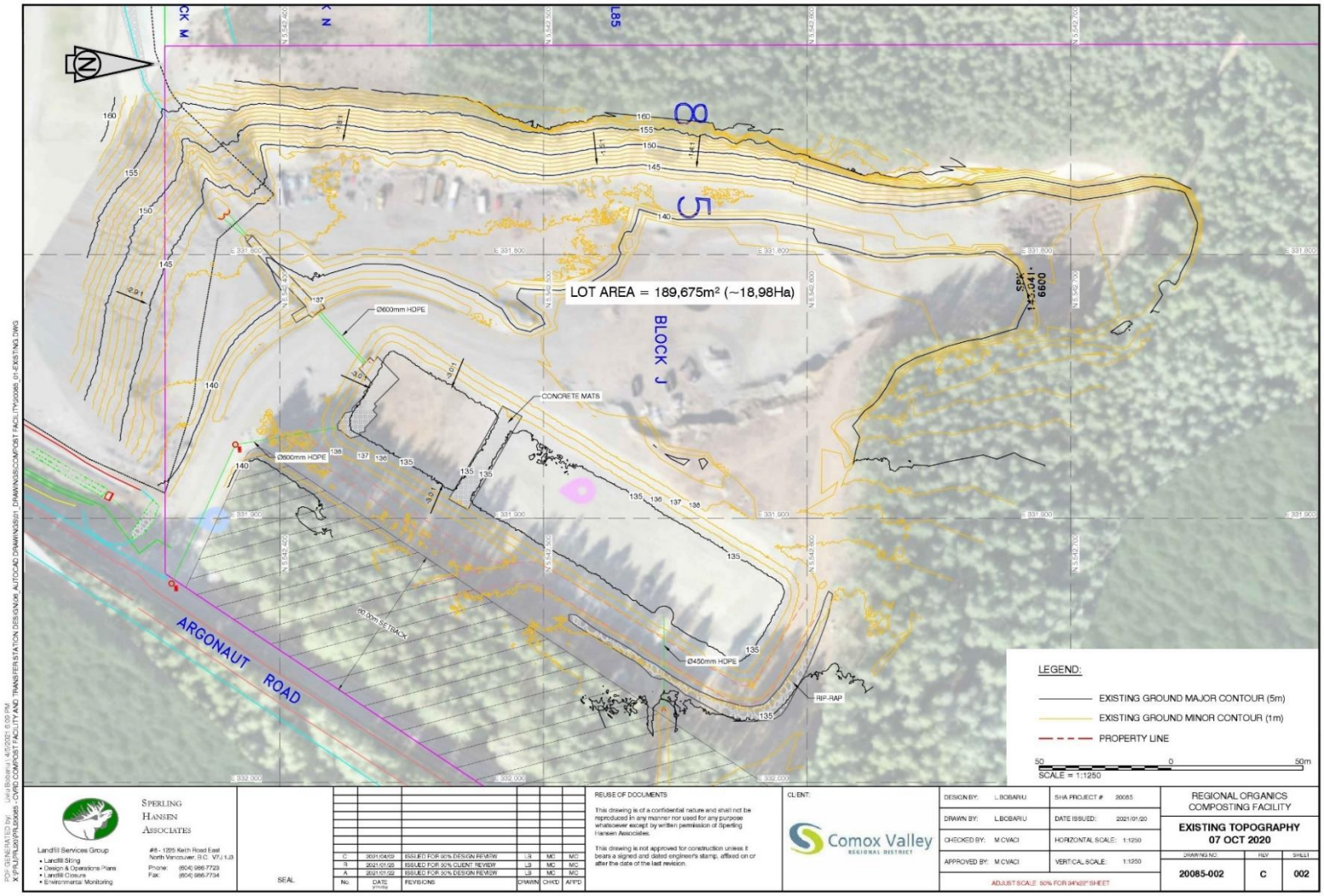


Figure 4. Existing topography for the proposed development site at 6300 Argonaut Road, Campbell, River.

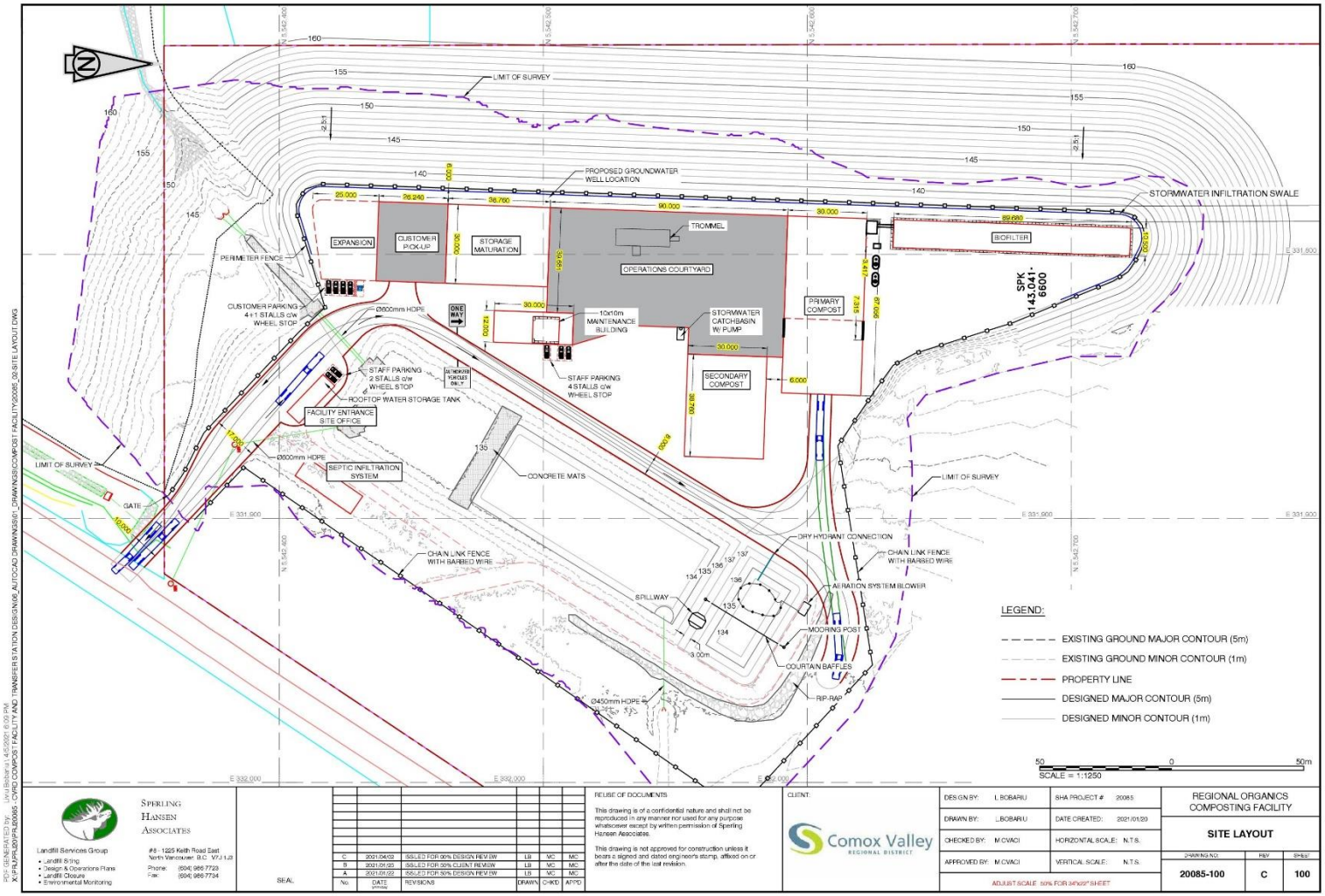


Figure 5. Proposed site plan for the development of a composting facility at 6300 Argonaut Road, Campbell River.

Photo 1. North Argonaut Road Ditch at the POC. No evidence of flowing or stagnant surface water was observed within 30m of the proposed development.

Photo 2. North Argonaut Road Ditch at 0+180m, the ditch passed through a driveway culvert approximately 50m southwest of the western property boundary, no evidence of flow was observed at this location or within 30m of the proposed development.

Photo 3. North Argonaut Road Ditch at the point of termination, where the ditch was no longer present upslope.

Appendix 1 – Environmental Mitigation Plan (EMP) for Development of 6300 Argonaut Road, Campbell River, BC

An assessment of the property located at 6300 Argonaut Road, Campbell River BC (PID:012-445-651) determined that the proposed developments do not fall within the Riparian Assessment Area and therefore, may proceed without further assessment under the provisions of the Riparian Area Regulation. As the ditch along Argonaut Road does not show evidence of surface flow erosion, sediment controls are likely not required. However, if land alteration or works create an environment where additional runoff would result, the following EMP has been prepared to address sediment control. The EMP provides guidance regarding future vegetation clearing with respect to nesting birds.

Erosion and Sediment Control – In order to prevent the creation of excess sediment and siltation the following materials and measures should be available to be used as required:

- The use of straw bales and/or geo-textile fabric to stabilize exposed ground.
- Revegetate and stabilize exposed ground following the completion of work.
- Use of surface water control techniques including but not limited to swales, sumps, retention ponds.

Work Timing and Scheduling

- Have a plan in place such that work can be completed in a timely manner.
- Avoid working during periods of adverse weather when silt and sediment may be unnecessarily created, i.e., during extreme precipitation.

Vegetation Clearing

- Follow timing windows to avoid disturbance to vegetation that would impact wildlife (e.g., avoid vegetation removal during breeding bird season); do not clear open land and forest from March 12th to August 11th (timing window is therefore August 12th to March 11th) [6]

[6] Government of Canada, October 30th 2018, Nesting Periods: Table 1a. Regional nesting period table in Canada, technical information for planning purposes: Nesting Zone A. https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html#_zoneA_calendar (Accessed September 24 2019)

to comply with the *Wildlife Act* and *Migratory Birds Convention Act*, unless a breeding bird survey is completed by a QEP concludes there is a high probability that no nests are present in the immediate vicinity of the area to be cleared.

- If vegetation clearing has not been completed prior to March 12th a breeding bird survey must be completed by a QEP to determine if nests are present in the immediate vicinity of the area to be cleared.

Appendix 2. Federally or Provincially listed species at risk potentially present in the vicinity of the proposed development at 6300 Argonaut Road, Campbell River (BC Species & Ecosystems Explorer).

Scientific Name	English Name	Prov Status	BC List	SARA Status	Conservation Framework Highest Priority
Abronia latifolia	yellow sand-verbena	S3	Blue		1
Accipiter gentilis laingi	Northern Goshawk, *laingi* subspecies	S2	Red	Threatened	1
Aechmophorus occidentalis	Western Grebe	S1B,S2N	Red	Special Concern	1
Allium amplectens	slimleaf onion	S3	Blue		2
Allogona townsendiana	Oregon Forestsnail	S2	Red	Endangered	1
Ammodramus savannarum	Grasshopper Sparrow	S1B	Red		1
Anarta edwardsii	Edwards' Beach Moth	S1	Red	Endangered	1
Aneides vagrans	Wandering Salamander	S3	Blue	Special Concern	2
Arbutus menziesii / Arctostaphylos columbiana	arbutus / hairy manzanita	S2	Red		2
Arctiostrotus perrieri		S3?	Blue		
Ardea herodias fannini	Great Blue Heron, *fannini* subspecies	S2S3B,S4N	Blue	Special Concern	1
Asio flammeus	Short-eared Owl	S3B,S2N	Blue	Special Concern	2
Athene cunicularia	Burrowing Owl	S1B	Red	Endangered	2
Balsamorhiza deltoidea	deltoid balsamroot	S2	Red	Endangered	1
Bartramia aprica	rigid apple moss	S2	Red	Endangered	
Bartramia longicauda	Upland Sandpiper	S2B	Red		1
Bidens amplissima	Vancouver Island beggarticks	S3	Blue	Special Concern	1
Botaurus lentiginosus	American Bittern	S3B, SNRN	Blue		2
Brachyramphus marmoratus	Marbled Murrelet	S3B,S3N	Blue	Threatened	1
Branta bernicla	Brant	S3M	Blue		2
Branta canadensis occidentalis	Canada Goose, *occidentalis* subspecies	S2M	Red		2
Buteo lagopus	Rough-legged Hawk	S3N	Blue		2
Buteo swainsoni	Swainson's Hawk	S2B	Red		2
Butorides virescens	Green Heron	S3S4B	Blue		4
Calcarius pictus	Smith's Longspur	S3S5B	Blue		4
Calidris canutus	Red Knot	S1S2M	Red	Threatened /	1
Callophrys eryphon sheltonensis	Western Pine Elfin, *sheltonensis* subspecies	S3	Blue		4

Callophrys johnsoni	Johnson's Hairstreak	S2?	Red			2
Callophrys mossii mossii	Moss' Elfin, *mossii* subspecies	S2S3	Blue			2
Cardellina canadensis	Canada Warbler	S3S4B	Blue	Threatened		2
Carex lasiocarpa - Rhynchospora alba	slender sedge - white beak-rush	S2	Red			1
Carex sitchensis - Oenanthe sarmentosa	Sitka sedge - Pacific water-parsley	S3	Blue			2
Carex tumulicola	foothill sedge	S3S4	Yellow	Endangered		2
Carychium occidentale	Western Thorn	S3	Blue			2
Cercyonis pegala incana	Common Wood-nymph, *incana* subspecies	S2	Red			2
Cervus elaphus roosevelti	Roosevelt Elk	S3S4	Blue			
Chondestes grammacus	Lark Sparrow	S3S4B	Blue			2
Chrysemys picta	Painted Turtle	S3	No Status	Endangered /		2
Chrysemys picta pop. 1	Painted Turtle - Pacific Coast Population	S1S2	Red	Endangered		2
Cladonia decorticata	strip-tease pixie	S3	Blue			3
Clarkia purpurea ssp. quadrivulnera	wine-cup clarkia	S2	Red			1
Claytonia washingtoniana	Washington springbeauty	S2	Red			3
Coccyzus americanus	Yellow-billed Cuckoo	SXB	Red			3
Coenonympha tullia insulana	Common Ringlet, *insulana* subspecies	S1	Red			1
Contia tenuis	Sharp-tailed Snake	S1S2	Red	Endangered		1
Contopus cooperi	Olive-sided Flycatcher	S3S4B	Blue	Threatened		2
Copablepharon fuscum	Sand-verbena Moth	S1	Red	Endangered		2
Corallorhiza maculata var. ozettensis	Ozette coralroot	S3	Blue			
Corynorhinus townsendii	Townsend's Big-eared Bat	S3S4	Blue			2
Cryptomastix devia	Puget Oregonian	SX	Red	Extinct		1
Cypseloides niger	Black Swift	S2S3B	Blue	Endangered		2
Danaus plexippus	Monarch	S1?B	Red	Special Concern		2
Dermatocarpon intestiniforme	quilted stippleback	S2S3	Blue		Not Assessed	
Dermochelys coriacea	Leatherback	S1N	Red	Endangered		2
Deroceras hesperium	Evening Fieldslug	SH	Red			2
Dolichonyx oryzivorus	Bobolink	S3B	Blue	Threatened		2
Dryopteris arguta	coastal wood fern	S3	Blue	Special Concern		2

Eleocharis palustris Herbaceous Vegetation	common spike-rush Herbaceous Vegetation	S3	Blue		3
Enallagma clausum	Alkali Bluet	S3	Blue		2
Entosphenus macrostomus	Cowichan Lake Lamprey	S2	Red	Threatened	
Entosthodon fascicularis	banded cord-moss	S2S3	Blue	Special Concern	2
Epargyreus clarus	Silver-spotted Skipper	S3	Blue		4
Epargyreus clarus californicus	Silver-spotted Skipper, *californicus* subspecies	S1	Red		
Epilobium densiflorum	dense spike-primrose	S2	Red	Endangered	1
Eremophila alpestris strigata	Horned Lark, *strigata* subspecies	SXB	Red	Endangered	1
Erigeron philadelphicus var. glaber	salt marsh Philadelphia daisy	S1	Red		
Erioderma sorediatum	vole felt	S2S3	Blue		3
Erynnis propertius	Propertius Duskywing	S2	Red		2
Erythemis collocata	Western Pondhawk	S3S4	Blue		2
Eschrichtius robustus	Grey Whale	S3	Blue	Special Concern	4
Euchloe ausonides insulanus	Large Marble, *insulanus* subspecies	SX	Red	Extinct	2
Eumetopias jubatus	Steller Sea Lion	S3B,S4N	Blue	Special Concern	2
Euonymus occidentalis var. occidentalis	western wahoo	S1	Red		1
Euphagus carolinus	Rusty Blackbird	S3S4B	Blue	Special Concern	2
Euphydryas editha taylori	Edith's Checkerspot, *taylori* subspecies	S1	Red	Endangered	1
Euphyes vestris	Dun Skipper	S2S3	Blue	Threatened	2
Eurybia radulina	rough-leaved aster	S2	Red		2
Falco mexicanus	Prairie Falcon	S1	Red		2
Falco peregrinus	Peregrine Falcon	S3	No Status	Special Concern	2
Falco peregrinus anatum	Peregrine Falcon, *anatum* subspecies	S2?	Red	Special Concern	2
Falco peregrinus pealei	Peregrine Falcon, *pealei* subspecies	S3S4	Blue	Special Concern	1
Falco rusticolus	Gyrfalcon	S3S4B, SNRN	Blue		4
Fratercula cirrhata	Tufted Puffin	S2S3B,S4N	Blue		2
Fratercula corniculata	Horned Puffin	S2B	Red		2
Fraxinus latifolia	Oregon ash	S1S2	Red		1
Fulmarus glacialis	Northern Fulmar	S1B, S4N	Red		2

Galba bulimoides	Prairie Fossaria	S3?	Blue			
Galba vancouverensis	Vancouver Fossaria	SH	Red			
Gasterosteus sp. 2	Enos Lake Limnetic Stickleback	SX	Red	Endangered	Extinct	
Gasterosteus sp. 3	Enos Lake Benthic Stickleback	SX	Red	Endangered	Extinct	
Githopsis specularioides	common bluecup	S3	Blue			2
Glaucidium gnoma swarthi	Northern Pygmy-owl, *swarthi*	S3S4	Blue			1
Gulo gulo	Wolverine	S3	No Status	Special Concern		2
Gulo gulo luscus	Wolverine, *luscus* subspecies	S3	Blue	Special Concern		2
Gulo gulo vancouverensis	Wolverine, *vancouverensis* subspecies	SH	Red	Special Concern		2
Haliotis kamtschatkana	Northern Abalone	S2	Red	Endangered		2
Hemphillia dromedarius	Dromedary Jumping-slug	S2	Red	Threatened		2
Hemphillia glandulosa	Warty Jumping-slug	S2?	Red	Special Concern		2
Hesperia colorado oregonia	Western Branded Skipper, *oregonia* subspecies	S1	Red			2
Hirundo rustica	Barn Swallow	S3S4B	Blue	Threatened		2
Hosackia pinnata	bog bird's-foot lotus	S2?	Red	Endangered		1
Hydroprogne caspia	Caspian Tern	S3B	Blue			2
Hypogymnia heterophylla	seaside bone	S2	Red	Threatened		2
Icaricia icarioides blackmorei	Boisduval's Blue, *blackmorei* subspecies	S3	Blue			
Icaricia saepiolus insulanus	Greenish Blue, *insulanus* subspecies	SH	Red	Endangered		
Icteria virens	Yellow-breasted Chat	S2B	Red	Endangered		1
Juncus hemiendytus var. hemiendytus	Hermanns dwarf rush	S2	Red			0
Lampetra richardsoni pop. 1	Western Brook Lamprey (Morrison Creek Population)	S1	Red	Endangered		1
Larus californicus	California Gull	S2S3B	Blue			4
Leioderma sorediatum	felted elf	S2S3	Blue			3
Leptogium californicum	midlife vinyl	S2S3	Blue			3
Leptogium platynum	batwing vinyl	S3S4	Yellow	Endangered		1
Limnanthes macounii	Macoun's meadow-foam	S2?	Red	Threatened		1
Limnodromus griseus	Short-billed Dowitcher	S2S3B	Blue			3
Limosa haemastica	Hudsonian Godwit	S1S2B	Red			3

Lithobates pipiens	Northern Leopard Frog	S1	Red	Endangered		1
Lomatium dissectum	fern-leaved desert-parsley	S2	Red			
Lupinus lepidus	prairie lupine	S1	Red	Endangered		1
	dense-flowered lupine	S1	Red	Endangered		
Lupinus microcarpus var. microcarpus						
Meconella oregana	white meconella	S1S2	Red	Endangered		1
	Western Screech-Owl, *kennicottii*	S2S3	Blue	Threatened		
Megascops kennicottii kennicottii	subspecies					1
Melanerpes lewis	Lewis's Woodpecker	S2S3B	Blue	Threatened		2
Melanitta americana	Black Scoter	S3S4N	Blue			2
Melanitta perspicillata	Surf Scoter	S3B,S4N	Blue			4
Microseris bigelovii	coast microseris	S2	Red	Endangered		1
Mirounga angustirostris	Northern Elephant Seal	S1B	Red			5
Montia chamissoi	Chamisso's montia	S3	Blue			2
Musculium partumeium	Swamp Fingernailclam	S2S4	Blue			1
Musculium transversum	Long Fingernailclam	S3S5	Blue		Not Assessed	
Mustela erminea anguinae	Ermine, *anguinae* subspecies	S3	Blue			2
Myrica gale / Carex sitchensis	sweet gale / Sitka sedge	S2	Red			3
Nearctula sp. 1	Threaded Vertigo	S3	Blue	Special Concern		2
Nephroma occultum	cryptic paw	S3	Blue	Special Concern		2
Numenius americanus	Long-billed Curlew	S3B	Blue	Special Concern		2
Nuttallanthus texanus	Texas toadflax	S3	Blue			4
Nycticorax nycticorax	Black-crowned Night-heron	S1	Red			3
Omus audouini	Audouin's Night-stalking Tiger Beetle	S1	Red	Threatened		1
Oncorhynchus clarkii clarkii	Cutthroat Trout, *clarkii* subspecies	S3S4	Blue			2
Ophiogomphus occidentis	Sinuous Snaketail	S3	Blue			2
Oporornis agilis	Connecticut Warbler	S3B	Blue			2
Oreamnos americanus	Mountain Goat	S3	Blue			1
Oreoscoptes montanus	Sage Thrasher	S1B	Red	Endangered		1
Ostrea lurida	Olympia Oyster	S3	Blue	Special Concern		
Pachydiplax longipennis	Blue Dasher	S3S4	Blue			4
Pannaria rubiginosa	considerable gingerbread	S2	Red			3

Parnassius clodius claudianus	Clodius Parnassian, *claudianus*	S3S4	Blue			6
Parnassius smintheus olympiannus	Rocky Mountain Parnassian, *olympiannus* subspecies	S2S3	Blue			2
Patagioenas fasciata	Band-tailed Pigeon	S3S4	Blue	Special Concern		2
Pekania pennanti	Fisher	S3	No Status			
Pelecanus erythrorhynchos	American White Pelican	S1B	Red			1
Phalacrocorax auritus	Double-crested Cormorant	S3S4	Blue			2
Phalacrocorax penicillatus	Brandt's Cormorant	S1B,S4N	Red			1
Phalaropus lobatus	Red-necked Phalarope	S3S4B	Blue	Special Concern		2
Physconia detersa	bottlebrush frost	S2?	Red		Not Assessed	
Physella propinqua	Rocky Mountain Physa	S3S4	Blue			6
Physella virginea	Sunset Physa	S3S5	Blue		Unable to Determine	
Picea sitchensis / Rubus spectabilis Very Dry Maritime	Sitka spruce / salmonberry Very Dry Maritime	S2	Red			2
Pinicola enucleator carlottae	Pine Grosbeak, *carlottae* subspecies	S3	Blue			2
Pinus contorta / Sphagnum spp. Very Dry Maritime	lodgepole pine / peat-mosses Very Dry Maritime	S3	Blue			3
Pituophis catenifer	Gopher Snake	S3	No Status	Extinct /		2
Pituophis catenifer catenifer	Gopher Snake, *catenifer* subspecies	SX	Red	Extinct		6
Plagiobothrys figuratus ssp. figuratus	fragrant popcornflower	S1	Red	Endangered		1
Planorbula campestris	Meadow Rams-horn	S3S4	Blue			6
Platanthera ephemerantha	white-lip rein orchid	S3	Blue			
Pluvialis dominica	American Golden-Plover	S3S4B	Blue			4
Polygonum paronychia	black knotweed	S3	Blue			2
Pooecetes gramineus affinis	Vesper Sparrow, *affinis* subspecies	S1B	Red	Endangered		1
Populus tremuloides / Malus fusca / Carex obnupta	trembling aspen / Pacific crab apple / slough sedge	S1	Red			1
Populus trichocarpa - Alnus rubra / Rubus spectabilis	black cottonwood - red alder / salmonberry	S3	Blue			2
Populus trichocarpa / Salix sitchensis	black cottonwood / Sitka willow	S2S3	Blue			2
Pristiloma johnsoni	Broadwhorl Tightcoil	S3	Blue			2
Progne subis	Purple Martin	S3S4B	Blue			3

Promenetus umbilicatellus	Umbilicate Sprite	S2S3	Blue			2
Prophysaon coeruleum	Blue-grey Taildropper	S2S3	Blue	Threatened		1
Pseudotsuga menziesii / Polystichum munitum	Douglas-fir / sword fern	S2	Red			2
Pseudotsuga menziesii - Tsuga heterophylla / Gaultheria shallon Dry Maritime	Douglas-fir - western hemlock / salal Dry Maritime	S2	Red			2
Psilocarphus elatior	tall woolly-heads	S2	Red	Endangered		1
Ptychoramphus aleuticus	Cassin's Auklet	S2B,S3N	Red	Special Concern		2
Pyrola aphylla	leafless wintergreen	S3	Blue			
Rana aurora	Northern Red-legged Frog	S3	Blue	Special Concern		1
Recurvirostra americana	American Avocet	S2S3B	Blue			2
Rhododendron groenlandicum / Kalmia microphylla / Sphagnum spp.	Labrador-tea / western bog-laurel / peat-mosses	S3	Blue			4
Sabulina pusilla	dwarf sandwort	S1	Red	Endangered		
Salix sitchensis - Salix lasiandra var. lasiandra / Lysichiton americanus	Sitka willow - Pacific willow / skunk cabbage	S2	Red			1
Salvelinus confluentus	Bull Trout	S3S4	Blue			2
Sanicula bipinnatifida	purple sanicle	S2	Red	Threatened		2
Schoenoplectus acutus Deep Marsh	hard-stemmed bulrush Deep Marsh	S3	Blue			4
Selaginella wallacei / Cladina spp.	Wallace's selaginella / reindeer lichens	S3	Blue			0
Seligeria acutifolia	acuteleaf small limestone moss	S1	Red			2
Sericocarpus rigidus	white-top aster	S3	Blue	Special Concern		1
Setophaga castanea	Bay-breasted Warbler	S2B	Red			2
Setophaga virens	Black-throated Green Warbler	S3B	Blue			1
Sidalcea hendersonii	Henderson's checker-mallow	S3	Blue			2
Silene scouleri ssp. scouleri	coastal Scouler's catchfly	S1	Red	Endangered		4
Sisyrinchium idahoense var. segetum	Idaho blue-eyed-grass	S1	Red			
Sorex navigator brooksi	Western Water Shrew, brooksi	S2S3	Blue			
Speyeria zerene bremnerii	Zerene Fritillary, *bremnerii* subspecies	S2	Red			2
Sphaerium striatinum	Striated Fingernailclam	S3S4	Blue		Not Assessed	
Stagnicola caperata	Wrinkled Marshsnail	S3S4	Blue			4

Sterna forsteri	Forster's Tern	S1B	Red		2
Stygobromus quatsinensis	Quatsino Cave Amphipod	S2S3	Blue		1
Sympetrum vicinum	Autumn Meadowhawk	S3S4	Blue		4
Synthliboramphus antiquus	Ancient Murrelet	S2S3B,S4N	Blue	Special Concern	1
Syntrichia laevipila	twisted oak moss	S3	Blue	Special Concern	2
Tanypteryx hageni	Black Petaltail	S3	Blue		4
Thuja plicata / Carex obnupta	western redcedar / slough sedge	S1S2	Red		2
Thuja plicata / Lonicera involucrata	western redcedar / black twinberry	S1	Red		1
Thuja plicata - Picea sitchensis / Lysichiton americanus	western redcedar - Sitka spruce / skunk cabbage	S3?	Blue		3
Thuja plicata / Polystichum munitum - Lysichiton americanus	western redcedar / sword fern - skunk cabbage	S3?	Blue		0
Thuja plicata / Polystichum munitum Very Dry Maritime	western redcedar / sword fern Very Dry Maritime	S2S3	Blue		2
Thuja plicata / Rubus spectabilis	western redcedar / salmonberry	S1S2	Red		1
Thuja plicata / Tiarella trifoliata Very Dry Maritime	western redcedar / three-leaved foamflower Very Dry Maritime	S2S3	Blue		2
Tonella tenella	small-flowered tonella	S3	Blue	Endangered	2
Tramea lacerata	Black Saddlebags	S2	Red		2
Trifolium dichotomum	Macrae's clover	S2S3	Blue		2
Tringa incana	Wandering Tattler	S3B	Blue		4
Triteleia howellii	Howell's triteleia	S1	Red	Endangered	1
Tsuga heterophylla - Pseudotsuga menziesii / Eurhynchium oreganum	western hemlock - Douglas-fir / Oregon beaked-moss	S2	Red		2
Tsuga heterophylla - Thuja plicata / Struthiopteris spicant	western hemlock - western redcedar / deer fern	S2	Red		
Typha latifolia Marsh	common cattail Marsh	S3	Blue		1
Tyto alba	Barn Owl	S2?	Red	Threatened	2
Uria aalge	Common Murre	S2B,S3S4N	Red		2
Uria lomvia	Thick-billed Murre	S1B, SUN	Red		2
Uropappus lindleyi	Lindley's microseris	S1S2	Red	Endangered	1
Ursus arctos	Grizzly Bear	S3?	Blue	Special Concern	2

Utricularia ochroleuca	ochroleucous bladderwort	S2S3	Blue		3
Viola howellii	Howell's violet	S1S2	Red		2
Viola praemorsa var. praemorsa	yellow montane violet	S1	Red	Endangered	
Woodwardia fimbriata	giant chain fern	S3	Blue		2
Zeltnera muehlenbergii	Muhlenberg's centaury	S1	Red	Endangered	

Search Criteria

Prov. Conservation Status:SX: Presumed Extirpated OR SH: Historical (Possibly Extirpated) OR S1: Critically Imperiled OR S2: Imperiled OR S3: Vulnerable
AND Area Of Interest: User Defined Polygon
Sort Order:Scientific Name Ascending
Open Government License– BC

Comox Strathcona Waste Management

Building Cladding

Building Clad Images
April 14, 2021

FIGURE 1: TYPICAL COLOUR ELEVATION FOR PRIMARY AND SECONDARY COMPOST BUILDINGS (POURED IN PLACE CONCRETE FOUNDATION) PLEASE REFER TO DRAWING #209 AND 210 FOR FURTHER DETAILS

FIGURE 2: TYPICAL PRIMARY AND SECONDARY COMPOSTING FACILITY BUILDING INTERIOR (POURED IN PLACE FOUNDATION) PLEASE REFER TO DRAWING # 209 AND #210 FOR FURTHER DETAILS

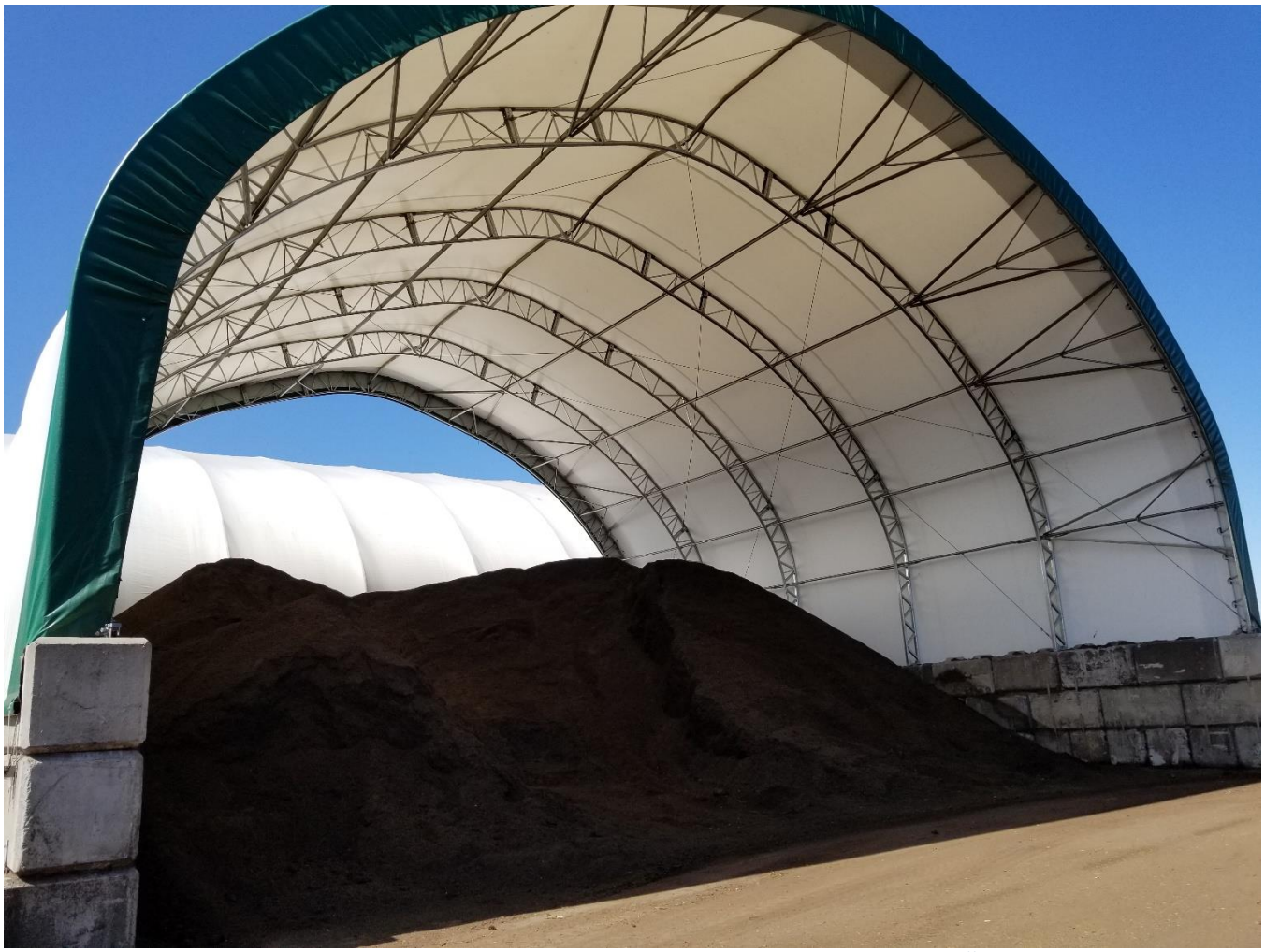


FIGURE 3: TYPICAL BUILDING FOR STORAGE BUILDING (LOCKBLOCK FOUNDATION) PLEASE REFER TO DRAWING #211 FOR FURTHER DETAILS

MEMBRANE STRUCTURE FABRIC

i build with ipg™

NovaShield™ BRAND

Membrane Structure Fabric

NovaShield®... Strong & Light!

Whether you're building a vast sports arena or a multi-purpose event tent, NovaShield is the proven choice for membrane structure fabrics. Designed to meet the industry's highest standards, NovaShield membrane structure fabric is a proven durable material with enhanced UV protection and superior abrasion resistance. Our patented weave produces impressive strength-to-weight ratios and its lighter weight makes for easier, faster, cost-saving installations. NovaShield features excellent physical properties, wider widths and better color retention than comparable products.

Get more info about IPG's Membrane Structure Fabric

The Industry Standard in Quality and Strength

Developed and manufactured by IPG®, NovaShield membrane structure fabric is designed for a variety of industries and applications. Our team takes the time to understand your unique needs and will help you select the NovaShield fabric that will deliver the performance that you require. IPG is also the only polyethylene membrane manufacturer to successfully combine long-life UV resistance with flame retardancy. NovaShield products pass the most demanding certification standards, including:

- **California Fire Marshal (Listed)**
- **ASTM E84 (Class 1)**
- **NFPA 701 (Method 1 Method 2)**
- **CAN/ULC S-102**
- **CAN/ULC S-109 (Large and Small Scale)**
- **EN13501.1 (B.s1.d0)**
- **DIN4102 (B1)**

APPLICATIONS

- **Recreational Facilities**
- **Agricultural Buildings**
- **Scaffolding Shelters**
- **Environmental Enclosures**
- **Sports Arenas**
- **Industrial Buildings**
- **Event Tents**
- **Exhibition Halls**
- **AND MUCH MORE!**

Stronger. Lighter. Tougher.

IPG®'s NovaShield® products are a proven alternative to PVC. Along with superior performance, IPG has continued to raise the bar when it comes to quality.

Our state-of-the-art ***vision system*** detects defects while the fabric is still on the roll during the manufacturing process.

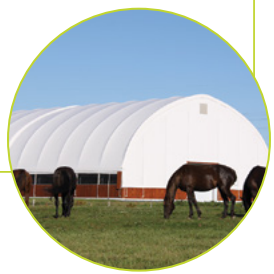
BENEFITS

Strength-to-Weight Ratio
Lighter weight means easier conversion, easier installation and lower freight costs.

Trapezoidal Tear Strength (ASTM D4533)
In-plane tear is the primary failure mode of membrane covers. IPG's NovaShield 400 series 12oz. product line offers over 4 times the trapezoidal tear strength (weight adjusted basis) than 22oz. PVC.

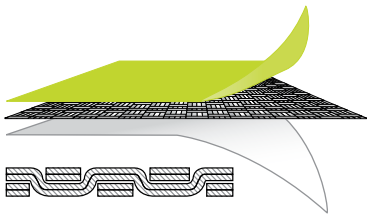
Abrasion Resistance (ASTM D3884)
22 oz. PVC suffers seven times the weight loss of 12 oz. NovaShield under standardized testing (1000g weight, 1000 cycles)

Improved Fungal Resistance
Unlike PVC, NovaShield contains no food for mold growth and will not attract dirt.



Our Patented Weave

NovaShield's exclusive double-stacked scrim is a unique weave design offering strength and durability that our competitors don't have. NovaShield is woven from high density polyethylene slit tapes and coated on both sides with low density polyethylene.



Structure Repair Tape

We are now offering our NovaShield Structure Repair Tape in white, green and beige. Also available in flame retardant (white only).

Table on Contents

CRRC COOL ROOF RATING COUNCIL

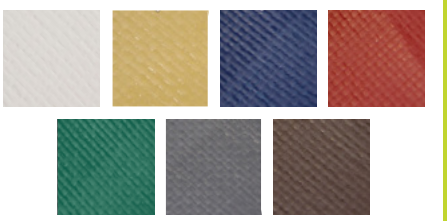
NovaShield™ BRAND

FRU88X-6 400 Series

with ARMORKOTE ADVANCED COATING TECHNOLOGY

Property	ASTM	Typical Performance
Base Fabric		HDPE + FR/UV
Coating		Armorkote + LDPE + FR
Weight *oz/sq yd (gsm)*	D5261	12.4 (420)
Thickness *mils (mm)*	D1777	23 (0.59)
Grab Tensile *lb (N)*	D5034	Warp 375 (1665) / Weft 340 (1510)
Strip Tensile *lb (N) (N/5cm)*	D5035	Warp 260 (2310) / Weft 240 (2131)
Tongue Tear *lb (N)*	D2261	Warp 120 (533) / Weft 110 (489)
Trapezoidal Tear *lb (N)*	D4533	Warp 110 (488) / Weft 90 (400)
Mullen Burst *psi (kPa)*	D3786	665 (4581)
Accelerated UV Weathering *% Retained Strength*	G154	>90
Accelerated Natural Weathering *% Retained Strength*	G90	>80
Low Temperature Bend °C	D2136	-60

AVAILABLE COLORS



Flame Retardant

NovaShield® FRU88X-6 is our heavyweight 12.4 oz. fabric with flame retardant protection on both the scrim and the fabric coating. This fabric is built to withstand the natural elements of time with long-term UV protection and superior abrasion resistance with our Armorkote™ recipe. The scrim is produced using IPG's special weaving pattern that enhances flatness and tear properties. This flame retardant fabric is recommended for large facilities housing important goods or items.

Recommended Applications: Entertainment Complexes, Manufacturing Facilities, Recreational Arenas, Aviation Hangars

Warranty: 15 year limited warranty

LIMITED 15 YEARS WARRANTY

Flame Retardant

NovaShield® RU88X-6 (FR) is our heavyweight 12.0 oz. fabric with a flame retardant coating and regular scrim. This fabric is built to withstand the natural elements of time with long-term UV protection and superior abrasion resistance with our Armorkote™ recipe. The scrim is produced using IPG's special weaving pattern that enhances flatness and tear properties.

Recommended Applications: Agricultural Buildings, Manufacturing Facilities and Warehouses, Marine Storage, Mining

Warranty: 15 year limited warranty

RU88X-6(FR) 400 Series

with ARMORKOTE ADVANCED COATING TECHNOLOGY

Property	ASTM	Typical Performance
Base Fabric		HDPE
Coating		Armorkote + LDPE + FR
Weight *oz/sq yd (gsm)*	D5261	12.0 (407)
Thickness *mils (mm)*	D1777	23 (0.59)
Grab Tensile *lb (N)*	D5034	Warp 370 (1664) / Weft 345 (1532)
Strip Tensile *lb (N) (N/5cm)*	D5035	Warp 250 (2220) / Weft 235 (2086)
Tongue Tear *lb (N)*	D2261	Warp 100 (488) / Weft 100 (444)
Trapezoidal Tear *lb (N)*	D4533	Warp 110 (444) / Weft 90 (400)
Mullen Burst *psi (kPa)*	D3786	650 (4478)
Accelerated UV Weathering *% Retained Strength*	G154	>90
Low Temperature Bend ℃	D2136	-60

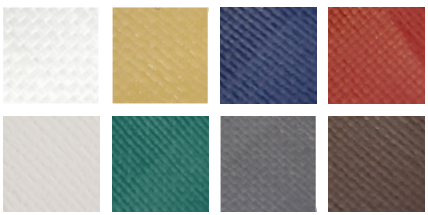
AVAILABLE COLORS

RU88X-6 400 Series

with ARMORKOTE ADVANCED COATING TECHNOLOGY

Property	ASTM	Typical Performance
Base Fabric		HDPE
Coating		Armorkote + LDPE
Weight *oz/sq yd (gsm)*	D5261	12.0 (407)
Thickness *mils (mm)*	D1777	23 (0.59)
Grab Tensile *lb (N)*	D5034	Warp 370 (1664) / Weft 345 (1532)
Strip Tensile *lb (N) (N/5cm)*	D5035	Warp 275 (2444) / Weft 235 (2086)
Tongue Tear *lb (N)*	D2261	Warp 110 (488) / Weft 100 (444)
Trapezoidal Tear *lb (N)*	D4533	Warp 100 (444) / Weft 90 (400)
Mullen Burst *psi (kPa)*	D3786	650 (4478)
Accelerated UV Weathering *% Retained Strength*	G154	>90
Accelerated Natural Weathering *% Retained Strength*	G90	>80
Low Temperature Bend ℃	D2136	-60

AVAILABLE COLORS



Standard

NovaShield® RU88X-6 is our heavyweight 12.0 oz. structure fabric. This fabric is built to withstand the natural elements of time with long-term UV resistance and is enhanced with our ArmorKote™ recipe for superior abrasion protection. The scrim is produced using IPG's special weaving pattern to enhance flatness and tear properties.

Recommended Applications: Agricultural Buildings, Salt & Sand Storage, Equipment Storage

Warranty: 15 year limited warranty

Standard

RU88X-6 350 Series

with ARMORKOTE ADVANCED COATING TECHNOLOGY

NovaShield® RU88X-6 is our heavyweight 10.5 oz. fabric for applications requiring superior performance and UV stability. The scrim is produced using IPG's special weaving pattern to enhance abrasion resistance and tear properties. This fabric is great for smaller applications where translucence and aesthetic appearance are a priority.

Recommended Applications: Membrane Structure End Covers, Small Warehouses, Hay & Feed Storage, Utility Buildings, Car Ports

Warranty: 5 year limited warranty

LIMITED 5 YEARS WARRANTY

Property	ASTM	Typical Performance
Base Fabric		HDPE
Coating		Armorkote + LDPE
Weight *oz/sq yd (gsm)*	D5261	10.5 (356)
Thickness *mils (mm)*	D1777	20 (0.50)
Grab Tensile *lb (N)*	D5034	Warp 370 (1664) / Weft 350 (1554)
Strip Tensile *lb (N) (N/5cm)*	D5035	Warp 250 (2220) / Weft 250 (2220)
Tongue Tear *lb (N)*	D2261	Warp 125 (555) / Weft 125 (555)
Trapezoidal Tear *lb (N)*	D4533	Warp 125 (555) / Weft 120 (532)
Mullen Burst *psi (kPa)*	D3786	655 (4512)
Accelerated UV Weathering *% Retained Strength*	G154	>90
Low Temperature Bend *°C*	D2136	-60

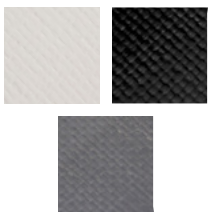
AVAILABLE COLORS

RB88X-6 350 Series

with ARMORKOTE ADVANCED COATING TECHNOLOGY

Property	ASTM	Typical Performance
Base Fabric		Black HDPE
Coating		Armorkote + LDPE
Weight *oz/sq yd (gsm)*	D5261	10.5 (356)
Thickness *mils (mm)*	D1777	20 (0.50)
Grab Tensile *lb (N)*	D5034	Warp 360 (1598) / Weft 360 (1598)
Strip Tensile *lb (N) (N/5cm)*	D5035	Warp 240 (2131) / Weft 270 (2398)
Tongue Tear *lb (N)*	D2261	Warp 140 (622) / Weft 160 (710)
Trapezoidal Tear *lb (N)*	D4533	Warp 140 (622) / Weft 140 (622)
Mullen Burst *psi (kPa)*	D3786	720 (4960)
Accelerated UV Weathering *% Retained Strength*	G154	>90

AVAILABLE COLORS

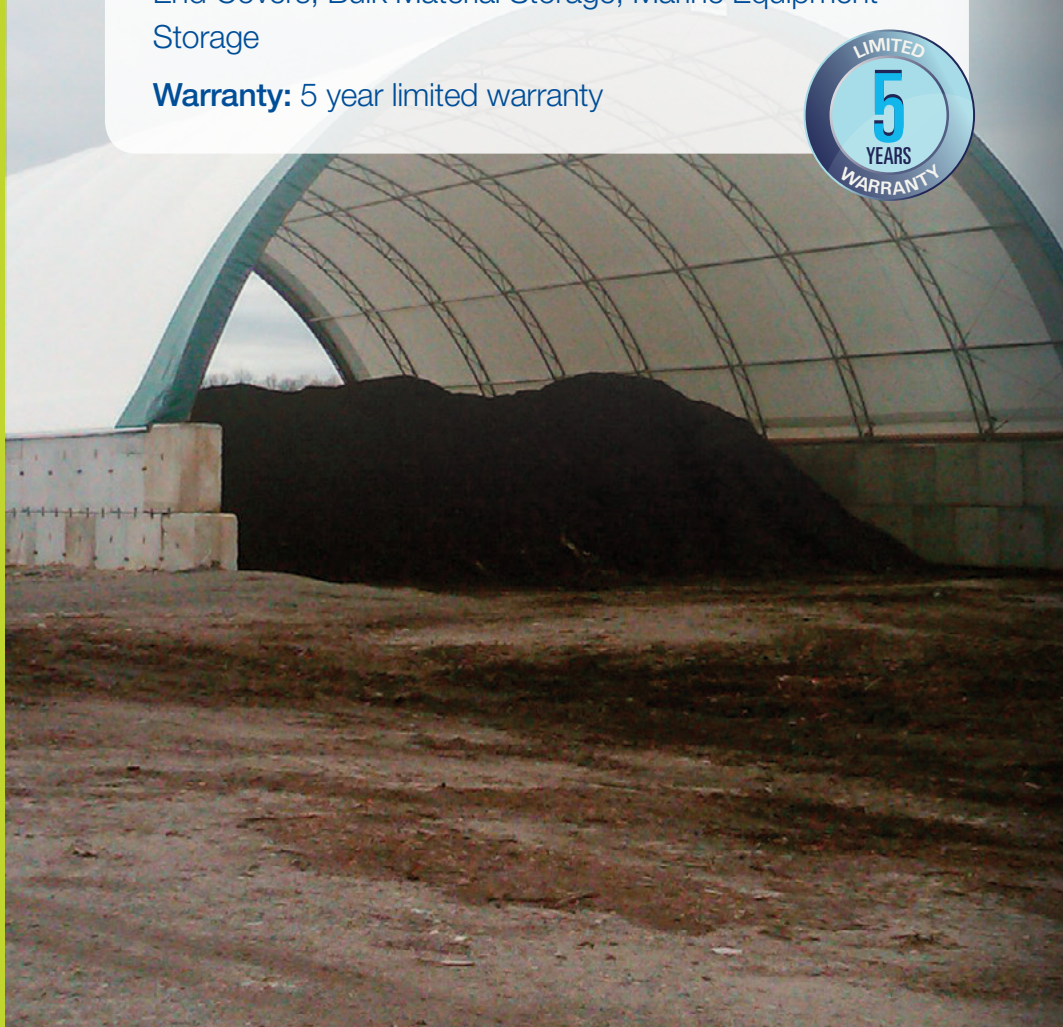


Standard

NovaShield® RB88X-6 is our heavyweight 10.5 oz. fabric for applications requiring low light transmittance and UV stability. The fabric's special weave pattern enhances abrasion resistance and tear properties.

Recommended Applications: Membrane Structure End Covers, Bulk Material Storage, Marine Equipment Storage

Warranty: 5 year limited warranty



Small Scale Structures

RU10-6 250

with ARMORKOTE ADVANCED COATING TECHNOLOGY

NovaShield® RU10-6 is our medium weight 7.4 oz. premium coated woven fabric with enhanced UV protection for use in applications that demand superior performance.

Recommended Applications: Event Tents, Scaffold Shelters, Portable Garages, Shade Structures, Greenhouses

Warranty: 5 year limited warranty

LIMITED 5 YEARS WARRANTY

Property	ASTM	Typical Performance
Base Fabric		Clear HDPE
Coating		Armorkote + LDPE
Weight *oz/sq yd (gsm)*	D5261	7.4 (247)
Thickness *mils (mm)*	D1777	16 (0.40)
Grab Tensile *lb (N)*	D5034	Warp 230 (1021) / Weft 220 (976)
Strip Tensile *lb (N) (N/5cm)*	D5035	Warp 150 (1332) / Weft 140 (1243)
Tongue Tear *lb (N)*	D2261	Warp 65 (288) / Weft 65 (288)
Trapezoidal Tear *lb (N)*	D4533	Warp 60 (266) / Weft 55 (244)
Mullen Burst *psi (kPa)*	D3786	415 (2859)
Accelerated UV Weathering *% Retained Strength*	G154	>80
Light Transmittance on Clear/Clear *%*	D1003	>80

AVAILABLE COLORS

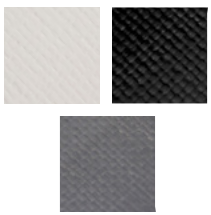
Small Scale Structures

RB10-6 250 Series

with ARMORKOTE ADVANCED COATING TECHNOLOGY

Property	ASTM	Typical Performance
Base Fabric		Black HDPE
Coating		Armorkote + LDPE
Weight *oz/sq yd (gsm)*	D5261	7.4 (247)
Thickness *mils (mm)*	D1777	16 (0.40)
Grab Tensile *lb (N)*	D5034	Warp 200 (888) / Weft 175 (777)
Strip Tensile *lb (N) (N/5cm)*	D5035	Warp 140 (1243) / Weft 130 (1154)
Tongue Tear *lb (N)*	D2261	Warp 62 (266) / Weft 60 (266)
Trapezoidal Tear *lb (N)*	D4533	Warp 60 (266) / Weft 50 (222)
Mullen Burst *psi (kPa)*	D3786	350 (2411)
Accelerated UV Weathering *% Retained Strength*	G154	>80

AVAILABLE COLORS



NovaShield® RB10-6 is our medium weight 7.4 oz. woven coated black scrim fabric with enhanced UV protection. Ideal for applications requiring low light transmittance such as agricultural uses.

Recommended Applications: Portable Garages, Car Ports, Boat Shelters, Agricultural Curtains

Warranty: 5 year limited warranty

LIMITED 5 YEARS WARRANTY

Small Scale Structures

NovaShield® RU8-6 is our lightweight 6.0 oz. woven coated clear scrim fabric with enhanced UV protection. This fabric is ideal for applications requiring portability and lightweight features, as well as strength to withstand northern winters.

Recommended Applications: Greenhouses, Portable Garages, Utility Sheds, Agricultural Curtains

Warranty: 5 year limited warranty

RU8-6 200

Property	ASTM	Typical Performance
Base Fabric		Clear HDPE
Coating		LDPE
Weight *oz/sq yd (gsm)*	D5261	6.0 (203)
Thickness *mils (mm)*	D1777	12 (0.30)
Grab Tensile *lb (N)*	D5034	Warp 220 (977) / Weft 175 (777)
Tongue Tear *lb (N)*	D2261	Warp 65 (288) / Weft 65 (288)
Trapezoidal Tear *lb (N)*	D4533	Warp 65 (288) / Weft 75 (333)
Mullen Burst *psi (kPa)*	D3786	370 (2549)
Accelerated UV Weathering *% Retained Strength*	G154	>80
Light Transmittance on Clear/Clear *%*	D1003	>82

Also available with flame retardant properties (FRU8-6) to meet local building code requirements.

AVAILABLE COLORS

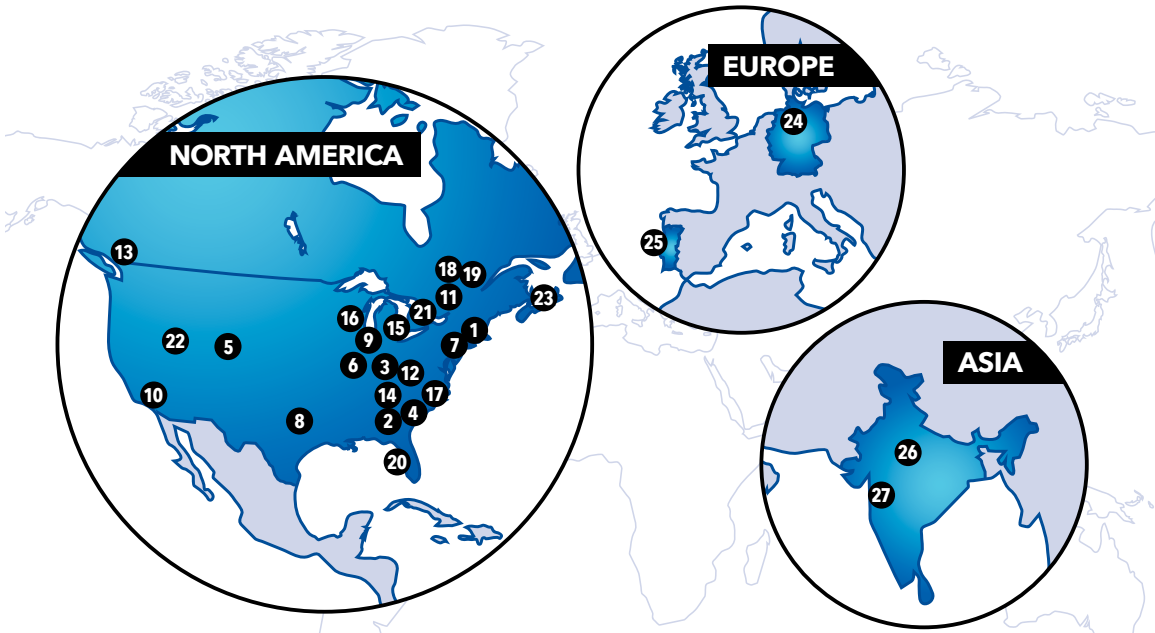
i build with

CORPORATE PROFILE

Intertape Polymer Group® Inc. (IPG®) is a recognized leader in the development, manufacture and sale of a variety of paper and film based pressure-sensitive and water-activated tapes, polyethylene and specialized polyolefin films, woven coated fabrics and complementary packaging systems for industrial and retail use. Headquartered in Montreal, Quebec and Sarasota, Florida, the Company employs approximately 2,500 employees with operations in 21 locations, including 13 manufacturing facilities in North America and one in each of Europe and Asia.

CORPORATE VISION

IPG's vision is to become an indispensable supplier to our customers, exceeding expectations in quality, delivery and cost through continuous improvement, innovation and customer interaction.



NORTH AMERICA

1. Ansonia, CT ■
2. Atlanta, GA ●
3. Bardstown, KY ●
4. Blythewood, SC ●
5. Brighton, CO ●
6. Carbondale, IL ●
7. Carlstadt, NJ ●
8. Carrollton, TX ●
9. Chicago, IL ●

NORTH AMERICA

12. Danville, VA ● ▲
13. Delta, BC ●
14. Johnson City, TN ●
15. Marysville, MI ●
16. Menasha, WI ●
17. Midland, NC ●
18. Montreal, QC ★
19. Montreal, QC ●
20. Sarasota, FL ☆

EUROPE

24. Flensburg, Germany ▲
25. Porto, Portugal ●

ASIA

26. Chopanki, India ●
27. Daman, India ●

● Manufacturing
■ Machine Assembly
▲ Distribution
★ Corporate Headquarters

800-565-2000
www.itape.com | info@itape.com

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Bolt - Outdoor

METEOR

The all new Bolt series. A transformation for greater heights with new technologies, performance and optics. Lumen package range of 25,245 lm – 68,340 lm. For project applications such as convention centers, multifunctional spaces, spots facilities, and others.

Quantity		Type	
Project		Note	

Electrical System

- 36400 lm (280W)
  53000 lm (440W)
  68340 lm (560W)
- Power Input: Universal (120-277V); HVT (347-480V)
- Operating Temperature: -40°F~104°F
- Surge Protection: 10 KV

Housing

- Dimensions:
  280W: 7.87" (200mm) x 17.68" (449mm) x 11.68" (297mm)
  440W/560W: 11.68 (297mm) x 19.35 (491mm) x 16.5" (419mm)
- Material: Die-Cast Aluminum, Tempered Glass
- Weight: 24.25 lbs (BLT-280) / 48.5 lbs (BLT-440/560)

Mounting

- Bracket
- Uplight Stem 2 ft / 4 ft
- Downlight Stem 2 ft / 4 ft
- Up/Down Stem 2 ft / 4 ft

LED Technology

- 3000K, 4000K, 5000K
- 85 CRI, 75 CRI
- Beam Angle: 15°, 30°, 60° and 100° (with diffuser)
- Rated Life > 100,000 Hours (L70)

Warranty

- 5-year limited warranty

Advanced Dimming

(Proprietary VX Driver is incorporated to all dimming options for video flicker-free lighting)

- Standard 1-10V: dims to 10%

Listing

- ETL Wet Location Listed
- DLC Listed
- FCC
- CE

IP65

Intertek

Not all Bolt Series are DLC qualified.
For all qualified products.
Please visit: www.designlights.org/qpl

*METEOR LIGHTING reserves the right to make changes to this product at any time without prior notice and such modification shall be effective immediately.

Bolt - Outdoor

METEOR

How to Specify:

Ordering Example: BLT-560-507-UNV-STV-15-BLK-BRK-WG

4-5 weeks lead time on over 75% of specifications.

Model	Wattage	CCT / CRI	Voltage	Dimming	Beam Angle
BLT			UNV		
BLT Bolt Series	**280** 280W **440** 440W **560** 560W	**308** 3000K / CRI85 **408** 4000K / CRI85 **507** 5000K / CRI75	**UNV** 120-277V **HVT** 348-480V	**STV** 1-10V dims to 10%	**15** 15º **30** 30º **60** 60º **80** 80º **WD*** 100º (with diffuser) *Please factor in change in lumen output with diffuser -20% with WD.

Finish	Mounting	Accessories	Rating
BLK Black **WHT** White	**BRK** Bracket **US2** Uplight Stem 2 ft **US4** Uplight Stem 4 ft **DS2** Downlight Stem 2 ft **DS4** Downlight Stem 4 ft **UDS2** Up/Down Stem 2 ft **UDS4** Up/Down Stem 4 ft NOTE: All stems are adjustable XX deg	**WG**[1] Wire Guard **GSB**[2] Glare Shield Baffle **GSV**[3] Glare Shield Visor **DF**[4] Diffuser **SLP*** Slipfitter (Black only) [1]Please factor in change in lumen output of -14%. [2]Please factor in change in lumen output of -40%. [3]Please factor in change in lumen output of -25%. [4]Please factor in change in lumen output of -20%. *Slipfitter only compatible with BRK	**OUT**[1] Outdoor Rating **NAT**[2] Natatorium Rating [1]Outdoor rating: Coating and wiring will be changed to high UV resistant and corrosion resistant materials for long term operation in outdoor environments. [2]Natatorium rating: Coating and sealant will be changed to high corrosion resistant materials to prevent damage from long term exposure to chlorine vapors.

DesignLights Consortium™ Qualified Luminaires:
DLC QPL Model Number: BLT-560-50K, BLT-150-CCT-UNV, BLT-220-CCT-UNV, BLT-280-CCT-UNV
Not all product variations listed on this page are DLC qualified.
To ensure that a specific model is qualified, visit www.designlights.org/search.

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Bolt - Outdoor

METEOR

Delivered Lumens

Wattage / CCT	280W	440W	560W
	Beam Angle: 15°		
5000K	36400 lm	53000 lm	68340 lm
4000K	32760 lm	47700 lm	61500 lm
3000K	30940 lm	45050 lm	58090 lm

* Tolerance ± 8%

Current Consumption

Volt / Wattage	120V	277V
280W	2.57A	1.11A
440W	4.03A	1.75A
560W	5.13A	2.22A

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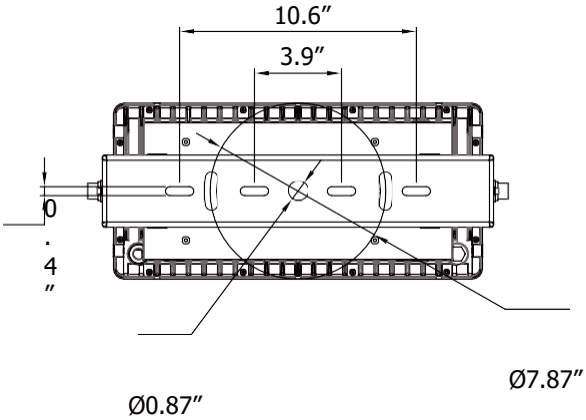
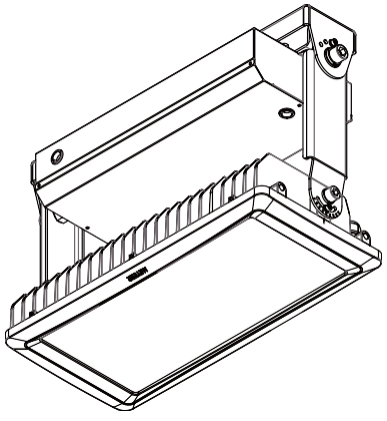
Bolt - Outdoor

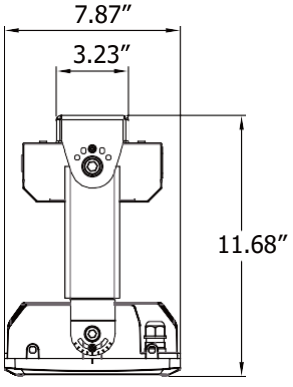
METEOR

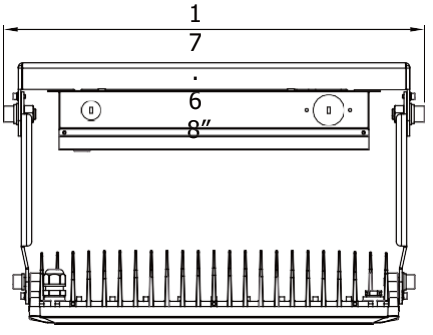
Dimensions

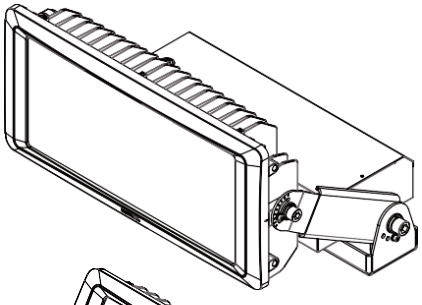
280W

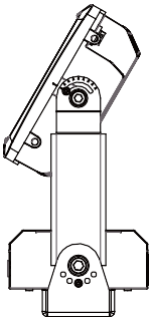


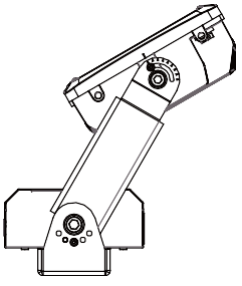


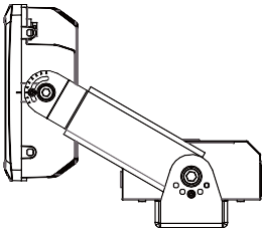


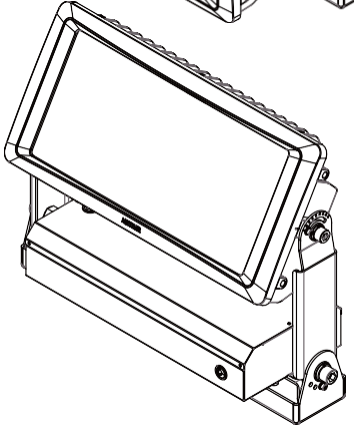












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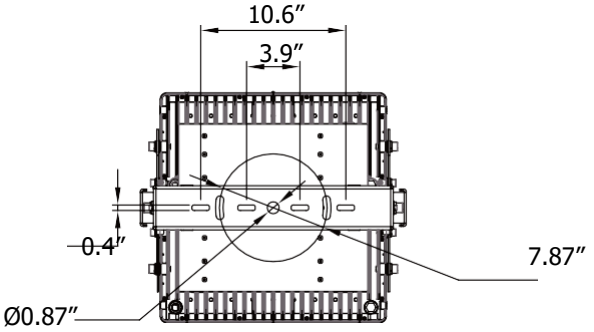
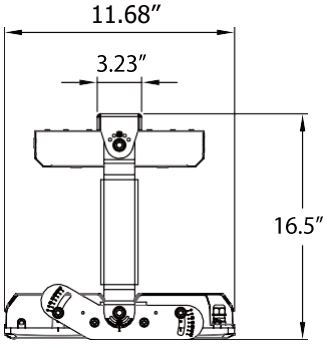
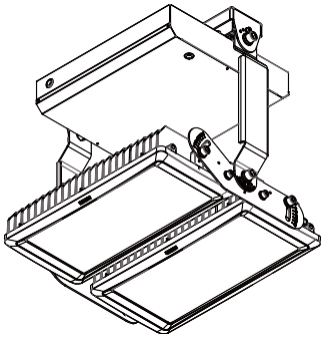
Bolt - Outdoor

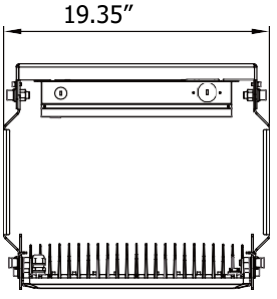
Dimensions

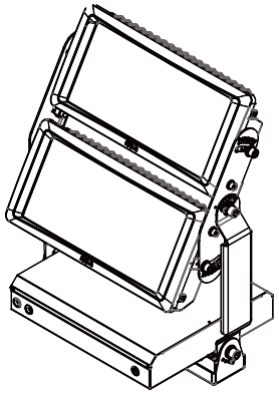
440W / 560W

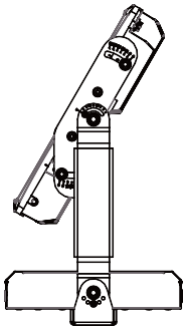


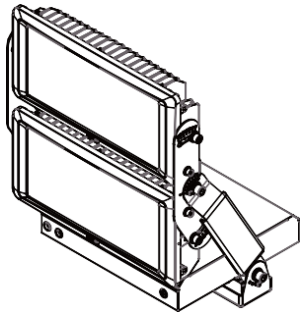


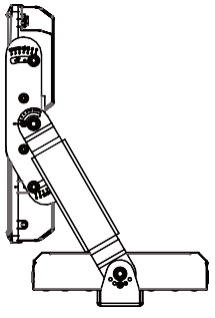


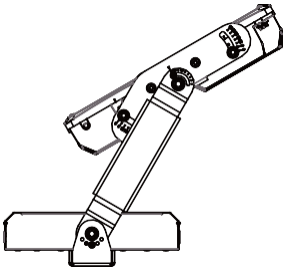












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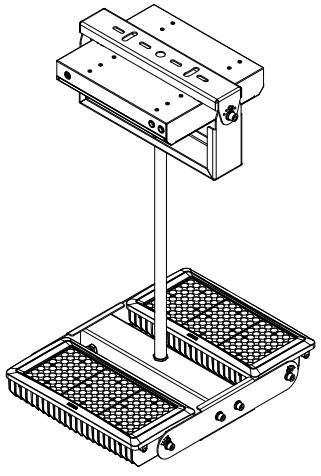
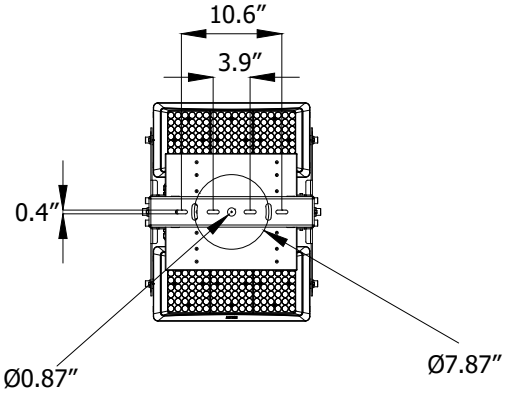
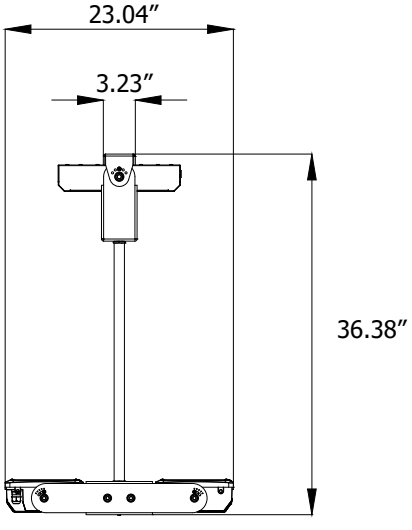
Bolt - Outdoor

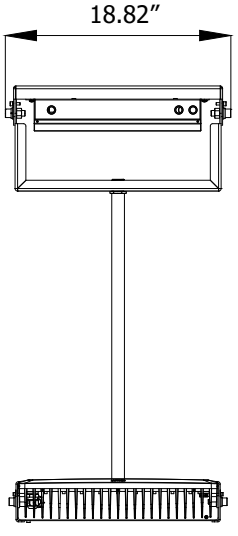
Dimensions

Uplight Only & Downlight Only Stem - 2 ft / 4 ft









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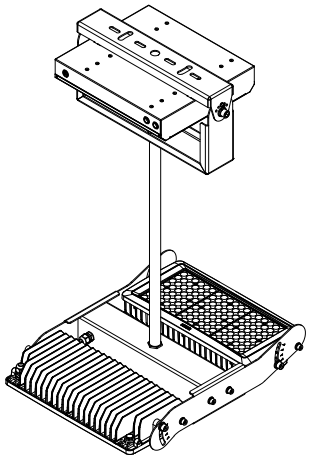
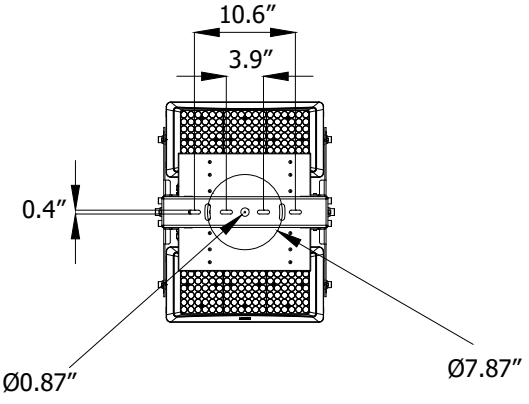
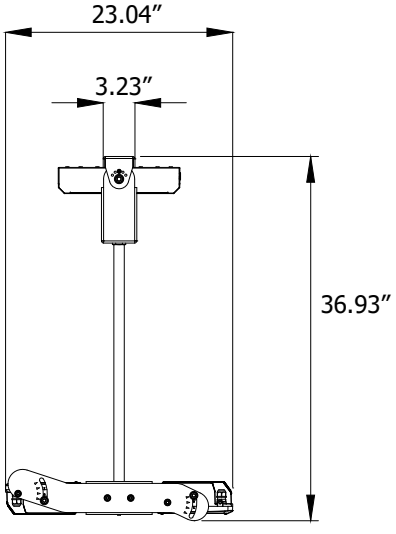
Bolt - Outdoor

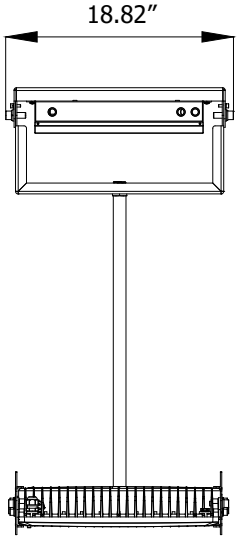
METEOR

Dimensions
Up/Down Stem - 2 ft / 4 ft









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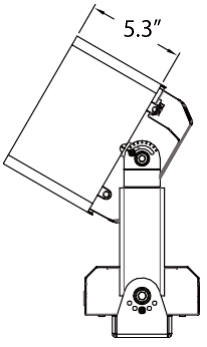
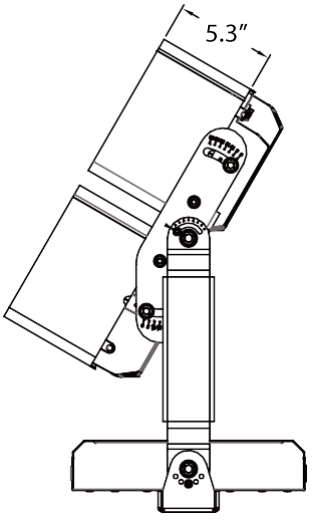
Bolt - Outdoor

Accessory

Glare Shield Baffle

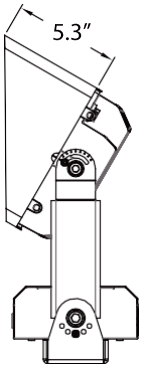


220W/280W

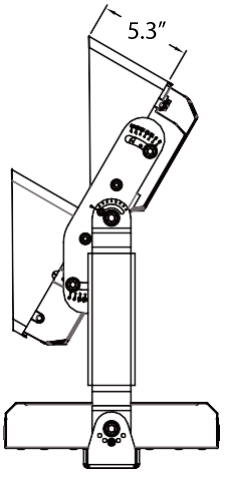


440W/560W

Glare Shield Visor

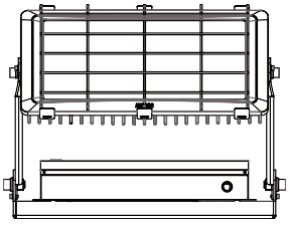


220W/280W

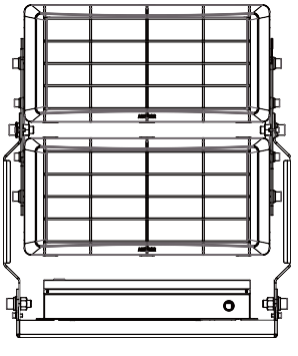


440W/560W

Wire Guard



220W / 280W



440W/560W

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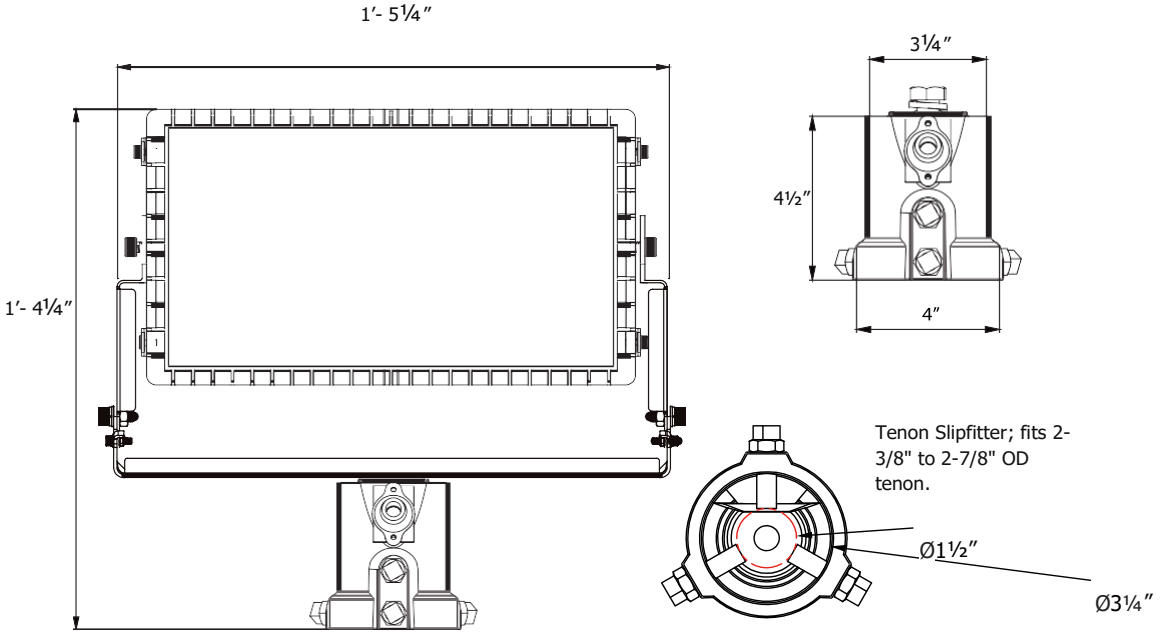
Bolt - Outdoor

Slipfitter



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LUMEC by signify

Roadway

RoadFocus

RFM Cobra head (medium)

Project:

Location:

Cat.No:

Type:

Lumens: Qty:

Notes:

Lumec RoadFocus LED cobra head luminaires feature a sleek design that provides seamless replacement of existing HID luminaires. RoadFocus is available in three sizes, offers multiple lumen packages, and a complete array of optical distributions, making it an outstanding solution for all types of roadway applications. Includes Service Tag, innovative way to provide assistance throughout the life of the product.

Ordering guide

example: RFM-108W48LED3K-G2-R2M-UNV-DMG-HS-PH8-RCD7-GY3

Series	LED module	CCT	Generation	Distribution	Voltage	Options		Finish
						Controls [4]	Options	
RFM RoadFocus medium	**130W32LED**[7] **135W40LED**[14] **55W48LED** [12] **80W48LED** **108W48LED** **160W48LED** **50W60LED**[14] **75W60LED**[14] **100W60LED**[14] **120W60LED**[14] **150W60LED**[14] **170W60LED**[14]	**4K** 4000K **3K** 3000K **2.7K**[11] 2700K	**G2** Generation 2	**Type 2** **R2S** Type II short (ASYM) **R2M** Type II Medium (ASYM) **Type 3** **R3S** Type III short (ASYM) **R3M** Type III Medium (ASYM) **Type 4** **4** Type IV (ASYM) **Type 5** **5** Type V (SYMM)	**UNV** 120–277V **HVU** 347–480V	**DALI**[1] Digitally addressable lighting interface **DMG**[5] 0–10V **SRD**[1] Sensor ready driver, standard configuration **SRD1**[1] Sensor ready driver, alternate configuration	**2C** Two clamp with 4 bolts **API** Factory installed NEMA label, ANSI C136.15-2015 compliant **FAWS**[7] Field adjustable wattage selector **CSS** [2,5] Cul-de-Sac Shield **FSS** [2,15] Front Side Shield **HS** [2,15] House Side Shield **LSS** [2,15] Left Side Shield **RSS** [2,15] Right Side Shield **NRC** [8] No receptacle **NYBC** 4-position terminal block **PH8** [1,10] Twist-lock photoelectric cell, UNV (120–277VAC) **PH8/347** [10,13] Twist-lock photoelectric cell (347VAC) **PH8/480** [10,13] Twist-lock photoelectric cell (480VAC) **PHXL** [1,10] Twist-lock photoelectric cell, extended life, UNV (120–277VAC) **PH9** [10] Shorting cap **RCD** [3,9] Tool less receptacle for twist-lock photocell or shorting cap, 5-pin (optional) **RCD7** [3,5] Tool less receptacle for twist-lock photocell or shorting cap, 7-pin (standard) **SP2** 20kV / 10kA Surge protector **TLRSR** [6] SR receptacle	**BK** Black **BR** Bronze **GY3** Gray **WH** White

[1] Not available with **HVU**.

[2] Refer to Accessories section to confirm compatibility of shields with optical distribution

[3] Use of photoelectric cell or shorting cap is required to ensure proper illumination.

[4] Select either **DALI** or **DMG** or **SRD** or **SRD1** mandatory option.

[5] Please note this integrated feature come standard with RoadFocus.

[6] Only available with **SRD** or **SRD1** Driver Options.

[7] Only available with **DMG** Driver Options

[8] Not available with **PH8**, **PH8/347**, **PH8/480**, **PHXL**, **PH9**, **DALI**, **SRD** or **SRD1** Driver Options.

[9] Not available with **SRD** Driver Options.

[10] Either **RCD** or **RCD7** must be selected for this option.

[11] Extended lead-time may apply. Consult factory.

[12] **FAWS** table accuracy +/- 15% on these models.

[13] Not available with **UNV**.

[14] Only available with R2M or R3M distributions.

[15] 1 shield provided per LED light engine.

Accessories (must be ordered as separate line item – quickly and easily installed in the field)

Interact City connector node (Contact the factory for additional support when connected lighting or additional services are desired.)

Shielding accessories

Description	Luminaire Option Code	Accessory Ordering Code		Shield vs Distribution Compatibility					
		12/16 LED version*	20 LED version*	R2M	R2S	R3M	R3S	4	5
Cul-de-sac shield	CSS	ACC-LG66V16LED-CSS	ACC-LG66V20LED-CSS	Yes	Yes	Yes	Yes	Yes	Yes
Front side shield	FSS	ACC-LG66V16LED-FSS	ACC-LG66V20LED-FSS	Yes	Yes	Yes	Yes	No	Yes
House side shield	HS	ACC-LG66V16LED-HS	ACC-LG66V20LED-HS	Yes	Yes	Yes	Yes	Yes	No
Left side shield	LSS	ACC-LG66V16LED-LSS	ACC-LG66V20LED-LSS	Yes	Yes	Yes	Yes	Yes	Yes
Right side shield	RSS	ACC-LG66V16LED-RSS	ACC-LG66V20LED-RSS	Yes	Yes	Yes	Yes	Yes	Yes

*Refer to Wattage table to confirm light engine configuration. Example, if configuration is 2x16LED, 2 of the desired shields must be ordered per luminaire.

RFM RoadFocus

LED Cobra head (medium)

Predicted Lumen Depreciation Data

Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions. L_{70} is the predicted time when LED performance depreciates to 70% of initial lumen output. Calculated per IESNA TM21-11 Addendum B. Published L_{70} hours limited to 6 times actual LED test hours.

Ambient Temperature °C	L70 per TM-21	Lumen Maintenance % at 60,000 hrs
25°C	>60,000 hours	>97.6%

LED Wattage values

Ordering Code	Total LEDs	Light Engine Configuration	Average System Watts[16]	Wattage label[17]
RFM-130W32LED	32	2x16LED	129	130
RFM-135W40LED	40	2x12LED+1x16LED	135	140
RFM-55W48LED	48	3x16LED	55	60
RFM-80W48LED	48	3x16LED	81	80
RFM-108W48LED	48	3x16LED	106	110
RFM-160W48LED[18]	48	3x16LED	161	160
RFM-50W60LED	60	3x20LED	52	50
RFM-75W60LED	60	3x20LED	77	80
RFM-100W60LED	60	3x20LED	99	100
RFM-120W60LED	60	3x20LED	122	120
RFM-150W60LED	60	3x20LED	149	150
RFM-170W60LED[18]	60	3x20LED	170	170

16. Typical values, rounded.
17. As per ANSI C136.15-2015. Consult factory for other labeling needs.
18. Rated for +40°C / +104°F.

4000K LED Lumen values

		Type R2M			Type R2S			Type R3M			Type R3S			Type 4			Type 5		
Ordering Code	Color Temp.	Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating
RFM-130W32LED	4000	14,913	116	B3-U0-G2	15,633	121	B3-U0-G2	14,971	116	B3-U0-G2	15,172	118	B2-U0-G2	14,901	116	B2-U0-G3	15,500	120	B4-U0-G2
RFM-135W40LED	4000	15,954	118	B3-U0-G3	N/A	N/A	N/A	16,040	119	B3-U0-G3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-55W48LED	4000	7,747	141	B2-U0-G1	8,123	147	B2-U0-G1	7,778	141	B2-U0-G1	7,883	143	B1-U0-G2	7,742	141	B1-U0-G2	8,053	146	B3-U0-G1
RFM-80W48LED	4000	11,109	138	B2-U0-G2	11,647	145	B2-U0-G2	11,153	138	B2-U0-G2	11,302	140	B2-U0-G2	11,101	138	B2-U0-G2	11,546	143	B4-U0-G2
RFM-108W48LED	4000	14,024	132	B3-U0-G2	14,702	139	B3-U0-G2	14,079	133	B3-U0-G2	14,268	135	B2-U0-G2	14,013	132	B2-U0-G2	14,576	138	B4-U0-G2
RFM-160W48LED	4000	19,412	121	B3-U0-G3	20,351	127	B3-U0-G2	19,489	121	B3-U0-G3	19,750	123	B2-U0-G3	19,397	121	B3-U0-G3	20,176	126	B4-U0-G2
RFM-50W60LED	4000	8,038	154	B2-U0-G2	N/A	N/A	N/A	8,081	155	B2-U0-G2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-75W60LED	4000	10,979	143	B2-U0-G2	N/A	N/A	N/A	11,038	143	B2-U0-G2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-100W60LED	4000	13,615	138	B3-U0-G3	N/A	N/A	N/A	13,688	138	B3-U0-G2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-120W60LED	4000	16,094	132	B3-U0-G3	N/A	N/A	N/A	16,181	133	B3-U0-G3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-150W60LED	4000	19,078	128	B3-U0-G3	N/A	N/A	N/A	19,180	129	B3-U0-G3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-170W60LED	4000	21,037	124	B3-U0-G3	N/A	N/A	N/A	21,150	124	B3-U0-G3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Actual performance may vary due to installation variables including optics, mounting/ceiling height, dirt depreciation, light loss factor, etc.; highly recommended to confirm performance with a layout - contact Applications at signify.com/outdoorluminaires. Consult DLC QPL to confirm your specific fixture selection is DLC approved.

Note: Some data may be scaled based on tests of similar but not identical luminaries.

RFM RoadFocus

LED Cobra head (medium)

3000K LED Lumen values

Ordering Code	Color Temp.	Type R2M			Type R2S			Type R3M			Type R3S			Type 4			Type 5		
		Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating
RFM-130W32LED	3000	13,990	109	B3-U0-G2	14,666	114	B3-U0-G2	14,045	109	B3-U0-G2	14,233	111	B2-U0-G2	13,979	109	B2-U0-G3	14,541	113	B4-U0-G2
RFM-135W40LED	3000	15,169	112	B3-U0-G3	N/A	N/A	N/A	15,251	113	B3-U0-G3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-55W48LED	3000	7,268	132	B2-U0-G1	7,620	138	B2-U0-G1	7,297	132	B2-U0-G1	7,395	134	B1-U0-G2	7,263	132	B1-U0-G2	7,555	137	B3-U0-G1
RFM-80W48LED	3000	10,422	129	B2-U0-G2	10,926	136	B2-U0-G2	10,463	130	B2-U0-G2	10,603	132	B2-U0-G2	10,414	129	B2-U0-G2	10,832	134	B4-U0-G2
RFM-108W48LED	3000	13,156	124	B3-U0-G2	13,792	130	B3-U0-G2	13,208	125	B3-U0-G2	13,385	126	B2-U0-G2	13,146	124	B2-U0-G2	13,674	129	B4-U0-G2
RFM-160W48LED	3000	18,211	113	B3-U0-G3	19,092	119	B3-U0-G2	18,283	114	B3-U0-G3	18,528	115	B2-U0-G3	18,197	113	B3-U0-G3	18,928	118	B4-U0-G2
RFM-50W60LED	3000	7,643	146	B2-U0-G2	N/A	N/A	N/A	7,684	147	B2-U0-G2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-75W60LED	3000	10,439	136	B2-U0-G2	N/A	N/A	N/A	10,495	136	B2-U0-G2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-100W60LED	3000	12,945	131	B3-U0-G2	N/A	N/A	N/A	13,015	131	B3-U0-G2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-120W60LED	3000	15,302	125	B3-U0-G3	N/A	N/A	N/A	15,384	126	B3-U0-G3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-150W60LED	3000	18,139	122	B3-U0-G3	N/A	N/A	N/A	18,237	122	B3-U0-G3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-170W60LED	3000	20,002	118	B3-U0-G3	N/A	N/A	N/A	20,110	118	B3-U0-G3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

2700K LED Lumen values

Ordering Code	Color Temp.	Type R2M			Type R2S			Type R3M			Type R3S			Type 4			Type 5		
		Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating
RFM-130W32LED	2700	12,829	100	B3-U0-G2	13,449	104	B3-U0-G2	14,045	109	B3-U0-G2	13,052	109	B2-U0-G2	12,819	100	B2-U0-G3	13,334	104	B4-U0-G2
RFM-135W40LED	2700	13,860	103	B3-U0-G3	N/A	N/A	N/A	13,935	103	B3-U0-G2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-55W48LED	2700	6,665	121	B2-U0-G1	6,988	127	B2-U0-G1	7,297	132	B2-U0-G1	6,781	132	B1-U0-G2	6,660	121	B1-U0-G2	6,928	126	B3-U0-G1
RFM-80W48LED	2700	9,557	119	B2-U0-G2	10,019	124	B2-U0-G2	10,560	131	B2-U0-G2	9,723	131	B2-U0-G2	9,550	119	B2-U0-G2	9,933	123	B4-U0-G2
RFM-108W48LED	2700	12,064	114	B3-U0-G2	12,648	119	B3-U0-G2	13,208	125	B3-U0-G2	12,274	125	B2-U0-G2	12,055	114	B2-U0-G2	12,539	118	B4-U0-G2
RFM-160W48LED	2700	16,700	104	B3-U0-G3	17,508	109	B3-U0-G2	18,283	114	B3-U0-G3	16,991	114	B2-U0-G3	16,687	104	B3-U0-G3	17,357	108	B4-U0-G2
RFM-50W60LED	2700	6,983	134	B2-U0-G2	N/A	N/A	N/A	7,021	134	B2-U0-G1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-75W60LED	2700	9,538	124	B2-U0-G2	N/A	N/A	N/A	9,589	125	B2-U0-G2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-100W60LED	2700	11,828	119	B2-U0-G2	N/A	N/A	N/A	11,892	120	B2-U0-G2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-120W60LED	2700	13,982	115	B3-U0-G3	N/A	N/A	N/A	14,057	115	B3-U0-G2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-150W60LED	2700	16,574	111	B3-U0-G3	N/A	N/A	N/A	16,663	112	B3-U0-G3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RFM-170W60LED	2700	18,276	108	B3-U0-G3	N/A	N/A	N/A	18,374	108	B3-U0-G3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Actual performance may vary due to installation variables including optics, mounting/ceiling height, dirt depreciation, light loss factor, etc.; highly recommended to confirm performance with a layout - contact Applications at signify.com/outdoorluminaires. Consult DLC QPL to confirm your specific fixture selection is DLC approved.

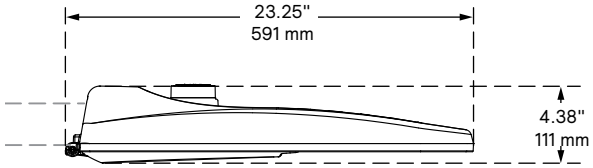
Note: Some data may be scaled based on tests of similar but not identical luminaries.

RFM RoadFocus

LED Cobra head (medium)

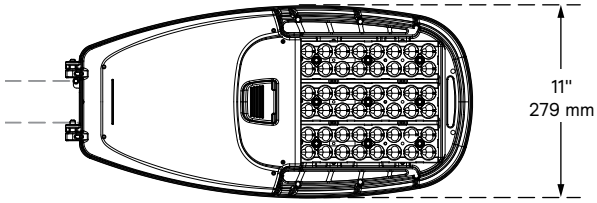
Dimensions

Side View



Weight: 12.2 Lbs
EPA: 0.53 sq. ft.

Bottom View



Field Adjustable Wattage (FAWS) Multiplier Chart

FAWS Position	Typical Delivered Lumens Multiplier	Typical System wattage
1	0.31	0.28
2	0.53	0.50
3	0.62	0.58
4	0.70	0.67
5	0.78	0.75
6	0.83	0.81
7	0.89	0.87
8	0.92	0.91
9	0.96	0.95
10	1.00	1.00

Note: Typical value accuracy +/- 5%

Specifications

Housing

Made of a low copper die cast Aluminum alloy (A360), 0.100" (2.5mm) minimum thickness. Fits on a 1.66" (42mm) O.D. (1.25" NPS), 1.9" (48mm) O.D. (1.5" NPS) or 2 3/8" (60mm) O.D. (2" NPS) by 5 1/2" (140mm) minimum long tenon. Comes with a zinc plated clamp fixed by 2 zinc plated hexagonal bolts 3/8 16 UNC for ease of installation. Provides an easy step adjustment of +/- 5° tilt in 2.5° increments. Includes integral bubble level standard (always included). A quick release, tool less entry, single latch, hinged, removable door opens downward to provide access to electronic components and to a terminal block. Door is secured to prevent accidental dropping or disengagement. A clearance of 13" (330mm) at the rear is required in order to remove the door. Complete with a bird guard protecting against birds and similar intruders and an ANSI label as per C136.15-2015 to identify wattage and source (both included in box). Housing (including electrical compartment) rated IP54 per ANSI C136.37.

Light Engine

Composed of 4 main components: LED Module / Optical System / Heat Sink / Driver.

Electrical components are RoHS compliant, IP66 sealed light engine LEDs tested by ISO 17025-2005 accredited lab in accordance with IESNA LM-80 guidelines in compliance with EPA ENERGY STAR, extrapolations in accordance with IESNA TM-21. Metal core board ensures greater heat transfer and longer lifespan.

LED Module: Composed of high-performance white LEDs. Color temperature as per ANSI/NEMA bin 2700 Kelvin nominal (2725 ±145K), 3000 Kelvin nominal (3045K +/- 175K) or 4000 Kelvin nominal (3985K +/- 275K), CRI 70 Min. 75 Typical. Other CCT/CRI also available, consult factory.

Optical System: Composed of high performance UV stabilized optical grade polymer refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. System is rated IP66. Performance shall be tested per LM-63, LM-79 and TM-15 (IESNA) certifying its photometric performance. 0% uplight and U0 per IESNA TM-15.

Heat Sink: Built in the housing, designed to ensure high efficacy and superior cooling by natural vertical convection air flow pattern always close to LEDs and driver optimizing their efficiency and life. Product does not use any cooling device with moving parts (only passive cooling). Wide openings enable natural cleaning and removal of dirt and debris. Entire luminaire is rated for operation in ambient temperature of -40°C / -40°F up to +50°C / +122°F unless otherwise specified, refer to LED Wattages Values Table.

Driver: High power factor of 90% min. Electronic driver, operating range 50/60 Hz. Auto adjusting universal voltage input from 120 to 277 or 347 to 480 VAC rated for both application line to line or line to neutral, Class I, THD of 20% max.

DMG: Dimming compatible 0-10 volts.
The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built in driver surge protection of 2.5kV (min).

Integrated Features

DMG: Dimmable driver 0-10V.

RCD7*: Tool less orientable receptacle with 7 pins enabling dimming and additional functionality (to be determined), can be used with a twist lock Interact City node or photoelectric cell or a shorting cap.

SP1: Surge protection device tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground, and in accordance with DOE MSSLC Model Specification for LED Roadway Luminaires Appendix D Electrical Immunity High test level 10kV/10kA.

Please note that these integrated features always come with RoadFocus luminaire.

* Use of photoelectric cell or shorting cap is required to ensure proper illumination.

Driver and Luminaire Options

DALI: Pre-set driver compatible with the DALI control system.

SRD: Sensor Ready Driver including SR communication (used for dimming and other functionalities), 24V auxiliary supply and a logical signal input (LSI) connected to the top NEMA twist lock receptacle and bottom TLRSR receptacle, if this option included/chosen. This configuration is compatible with Interact City controllers.

SRD1: Sensor Ready Driver including SR communication (used for dimming and other functionalities) but with 24V auxiliary supply and a logical signal input (LSI) not connected to the top NEMA twist lock. If TLRSR receptacle option included, standard SR communication, 24V auxiliary supply and LSI are connected to the TLRSR receptacle.

FAWS: Field Adjustable Wattage Selector, pre-set to the highest position, can be easily switched in the field to the required position. This reduces total luminaire wattage consumption and reduces the light level – see the FAWS multiplier chart for more details.

Note: It is not recommended to use FAWS with other dimming or controls; if you do, set the switch to position 10 (maximum output) to enable the other dimming or controls. Switching FAWS to any position other than 10 will disable the other dimming or controls.

RFM RoadFocus

LED Cobra head (medium)

Specifications (continued)

SP2: 20kV / 10kA surge protection device that provides extra protection beyond the SP1 10kV/10kA level.

NRC: No Receptacle. Fixture is shipped with a cap instead of a receptacle.

NYBC: 4-position terminal block

RCD*: Tool Less orientable receptacle with 5 pins enabling dimming, can be used with a twist lock Interact City or photoelectric cell or a shorting cap.

TLRSR: SR Sensor connector, installed in fixture door. Shipped with protective cover.

PH8: Twist-lock photoelectric cell, UNV (120-277VAC).

PH8/347: Twist-lock photoelectric cell, HVU (347VAC).

PH8/480: Twist-lock photoelectric cell, HVU (480VAC).

PHXL: Twist-lock photoelectric cell, extended life, UNV (120-277VAC).

PH9: Shorting cap.

API: Factory Installed NEMA label, ANSI C136.15-2015 compliant. Consult factory for other labeling needs.

* Use of photoelectric cell or shorting cap is required to ensure proper illumination.

Factory Installed Shield Options

(One per Light Engine)

CSS: Cul-de-Sac Shield. Shields light output on the left and right side of fixture.

FSS: Front Side Shield. Shields light output on the front side of fixture.

HS: House Side Shield. Shields light output to the back side of fixture.

LSS: Left Side Shield. Shields light output on the left side of fixture.

RSS: Right Side Shield. Shields light output on the right side of fixture.

Luminaire Useful Life

Refer to IES files for energy consumption and delivered lumens for each option. Based on ISTMT in situ thermal testing in accordance with UL1598 and UL8750, System Reliability Tool, Advance data and LED manufacturer LM-80/TM-21 data, expected to reach 100,000 + hours with >L70 lumen maintenance @ 25°C. Luminaire Useful Life accounts for LED lumen maintenance AND all of these additional factors including: LED life, driver life, PCB substrate, solder joints, on/off cycles, burning hours and corrosion.

Wiring

The connection of the luminaire is done using a terminal block connector 600V, 85A for use with #2 14 AWG. wires from the primary circuit, located inside the housing. Due to the inrush current that occurs with electronic drivers, recommend using a 10Amp time-delay fuse to avoid unwanted fuse blowing (false tripping) that can occur with normal or fast acting fuses.

Hardware

All exposed screws shall be complete with Ceramic primer seal to reduce seizing of the parts, also offers a high resistance to corrosion. All seals and sealing devices are made and/or lined with EPDM and/or silicone and/or rubber.

Finish

Color in accordance with the AAMA 2603 standard. Application of polyester powder coat paint (4 mils/100 microns) with ± 1 mils/24 microns of tolerance. The Thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard.

The surface treatment achieves a minimum of 5000 hours for salt spray resistant finish in accordance with testing performed and per ASTM B117 standard.

LED products manufacturing standard

The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340-5-1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

Vibration Resistance

The RFM meets the ANSI C136.31-2018, American National Standard for Roadway Luminaire Vibration specifications for Bridge/overpass applications. (Tested for 3G over 100,000 cycles by independent lab)

Certifications and Compliance

cULus Listed for Canada and USA. Luminaire meets DOE and MSSLC Model Specification for LED Roadway Luminaires. Most versions of RoadFocus LED Cobrahead luminaires are DesignLights Consortium qualified, consult DLC QPL to confirm your specific fixture selection is approved. CCTs 3000K and warmer are Dark Sky Approved. Luminaire complies with or exceeds the following ANSI C136 standards: .2, .3, .10, .14, .15, .22, .25, .31, .37, .41.

Service Tag

Each individual luminaire is uniquely identifiable, thanks to the Service tag application. With a simple scan of a QR code, placed on the inside of the mast door, you gain instant access to the luminaire configuration, making installation and maintenance operations faster and easier, no matter what stage of the luminaire's lifetime. Just download the APP and register your product right away.

For more details visit: philips.com/servicetag

Limited Warranty

10-year limited warranty.
See signify.com/warranties for details and restrictions.

Brackets/Arms

For brackets / arms available with this luminaire, see Lumec 3D for details.

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Signify North America Corporation
200 Franklin Square Drive,
Somerset, NJ 08873
Telephone 855-486-2216

Signify Canada Ltd.
281 Hillmount Road,
Markham, ON, Canada L6C 2S3
Telephone 800-668-9008

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