CITY OF NANAIMO
THE HARBOUR CITY

DEVELOPMENT PERMIT NO. DP001019

1083039 BC LTD
Name of Owner(s) of Land (Permittee)

4066 OLD SLOPE PLACE
Civic Address

1. This development permit is issued subject to compliance with all of the bylaws of the municipality applicable thereto, except as specifically varied or supplemented by this permit.

2. This development permit applies to and only to those lands within the municipality described below, and any and all building structures and other developments thereon:

   Legal Description:

   THAT PART OF LOT 2, SECTION 5, WELLINGTON DISTRICT, PLAN 7234 LYING TO THE NORTH WEST OF THE NORTH WESTERLY BOUNDARY OF PLAN 9567, EXCEPT PART IN PLAN VIP55344

   PID No. 005-741-467

3. The land described herein shall be developed strictly in accordance with the following terms and conditions and provisions of this permit and any plans and specifications hereto which shall form a part thereof.

Schedule A	**Location Plan**
Schedule B	**Site Plan**
Schedule C	**Schedule C - Nanaimo Parkway Design - Rural Parkway Wooded Setbacks**
Schedule D	**Proposed Berm Location and Design**
Schedule E	**Berm Construction Details**
Schedule F	**Rationale for Berm Design and Vegetation**

4. If the applicant does not substantially commence the development permitted by this permit within two years of the date of this permit, the permit shall lapse.

5. This permit is not a building permit nor does it constitute approval of any signage. Separate applications must be made for a building permit and sign permit.

PERMIT CONDITIONS

1. The proposed berm is developed generally in accordance with the site plan as prepared by Newcastle Engineering Ltd, as received 2016-OCT-12.

2. The proposed berm construction is developed in accordance with the landscape design rationale for the berm as prepared by M2 Landscape Architecture.

3. The proposed berm construction is in general compliance with the construction design details, prepared by M2 Landscape Architecture, as received 2017-JAN-13.

City Conditions for Supervision of Berm Construction & Maintenance

a) All recommendations of consulting arborist must be strictly adhered to.

b) Consulting arborist and the City's Urban Forester (CUF) must be present to inspect tree protection barriers/fencing which must be in place prior to any land clearing, excavation or tree removal before any activities commence.

c) Consulting arborist and CUF must meet onsite prior to constructing the berm, after tree removal has occurred. Consulting arborist must periodically inspect Tree Protection Zones during berm construction and land clearing to ensure they remain intact and berm design is being accomplished post clearing, prior to berm construction. The consulting arborist is to monitor regularly during berm construction and report the site status to CUF.

d) Once the berm is constructed the consulting arborist and CUF must meet onsite to examine construction, soils, irrigation coverage, and ensure all Tree Protection Zones remain unmolested post berm construction.

e) Consulting arborist and CUF must inspect after planting and seeding post berm planting.

f) The berm is to be irrigated as needed for five years. Irrigation system is to be tested and operational in April of each year, and winterized in October. The consultant is to maintain records.

g) Bi-annual removal of invasive species as part of ongoing maintenance for five years (May and September), ongoing throughout project.

h) Periodic inspections by CUF to inspect tree protection barriers, and health and composition of the berm as well as functionality of the irrigation system every two to six months at random intervals throughout project.

i) Towards the end, any work to be done within Tree Protection Zones must be pre-approved by the consulting arborist and CUF.

j) Tree protection fencing can only be removed with CUF/city approval towards the end of the project.

k) The berm maintenance bond can only be released after the consulting arborist has submitted a Letter of Substantial Completion. The berm maintenance bond may be released in increments if re-vegetation of the constructed berm is successful.

REVIEWED AND APPROVED ON

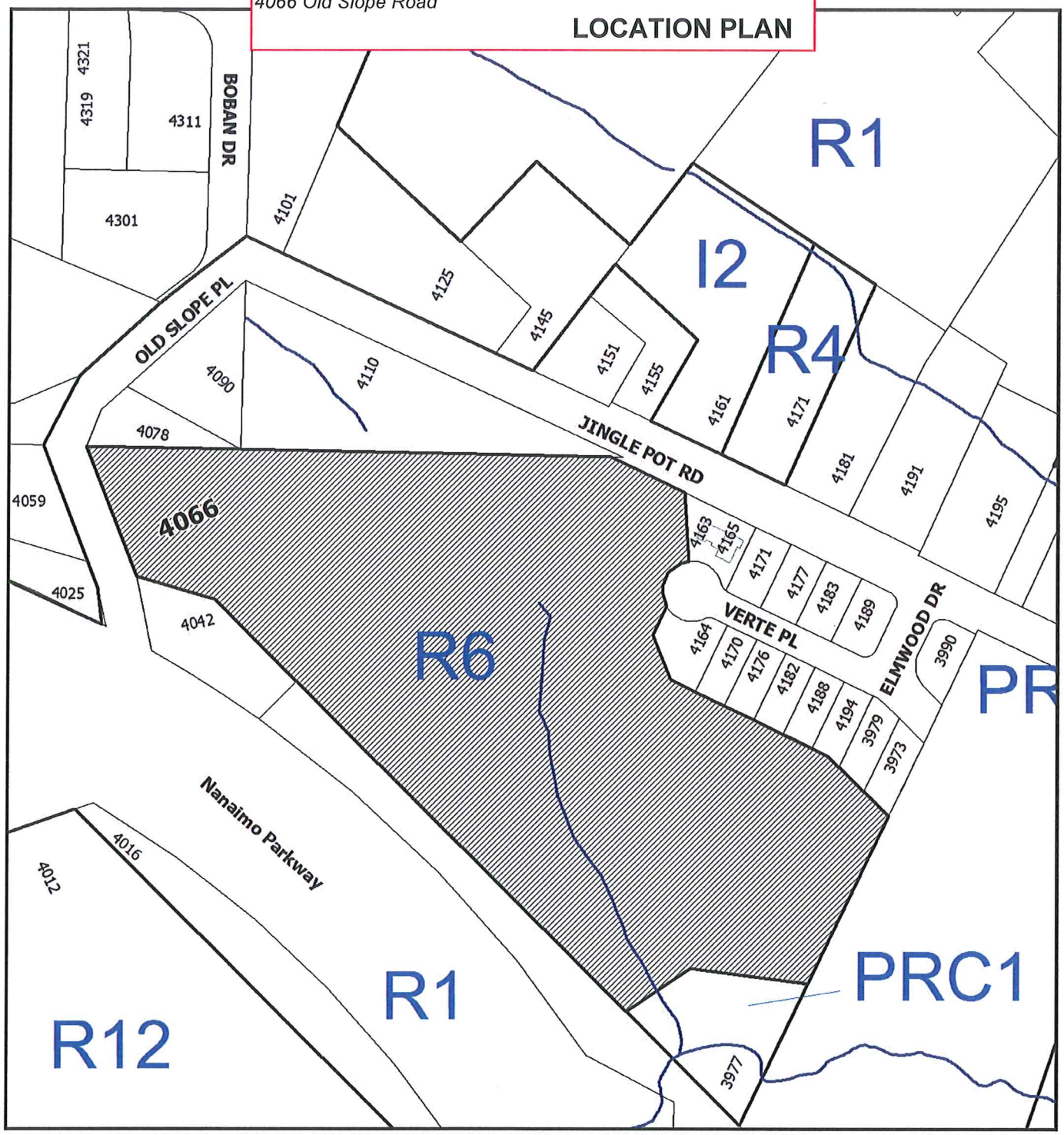
2017-FEB-23
Date

D. Lindsay
Director
Community Development
Pursuant to Section 154 (1)(b) of the Community Charter

GN/ln
Prospero attachment: DP001019

Development Permit DP001019 **Schedule A**
4066 Old Slope Road

LOCATION PLAN



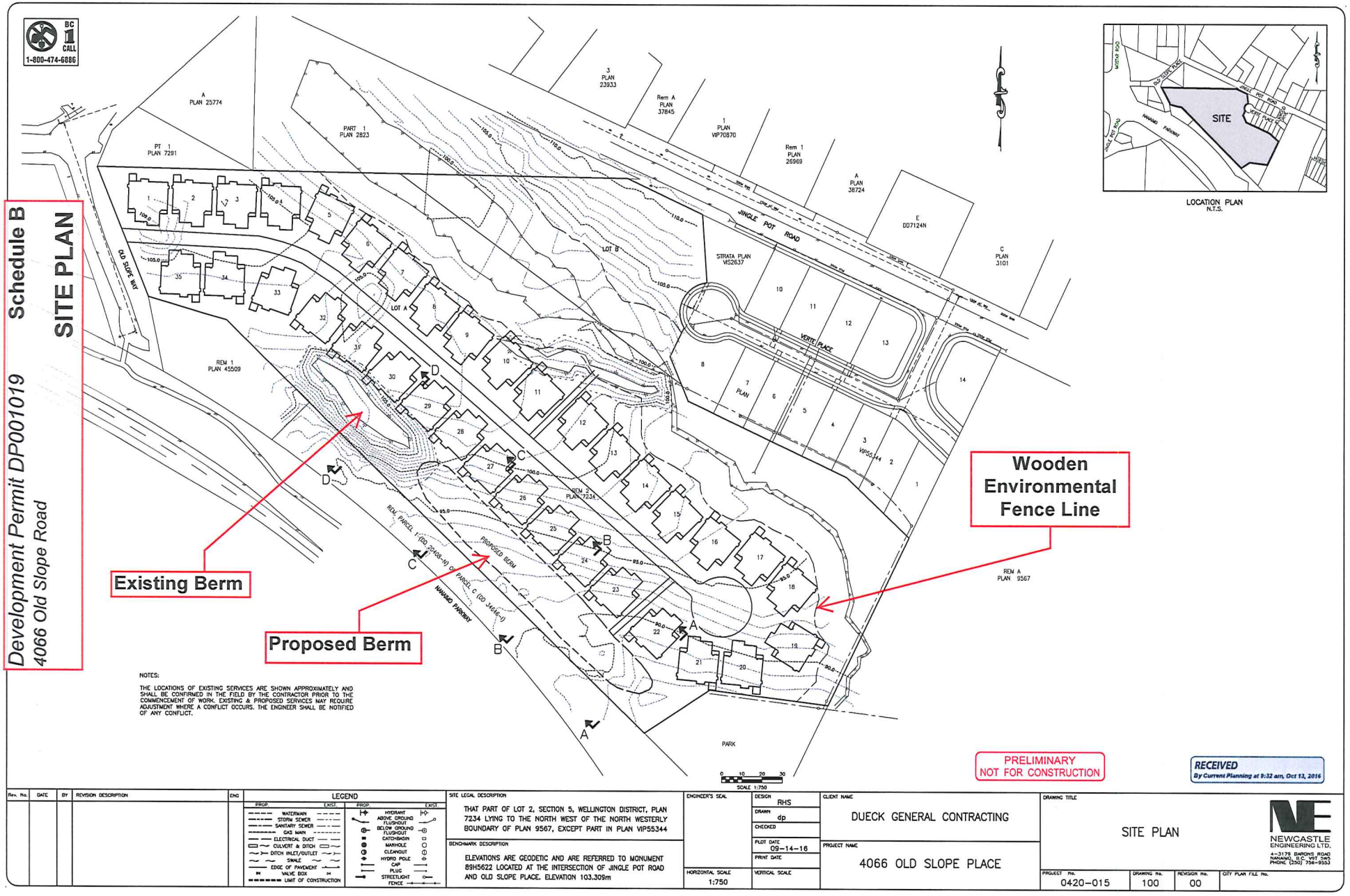
DEVELOPMENT PERMIT NO. DP001019

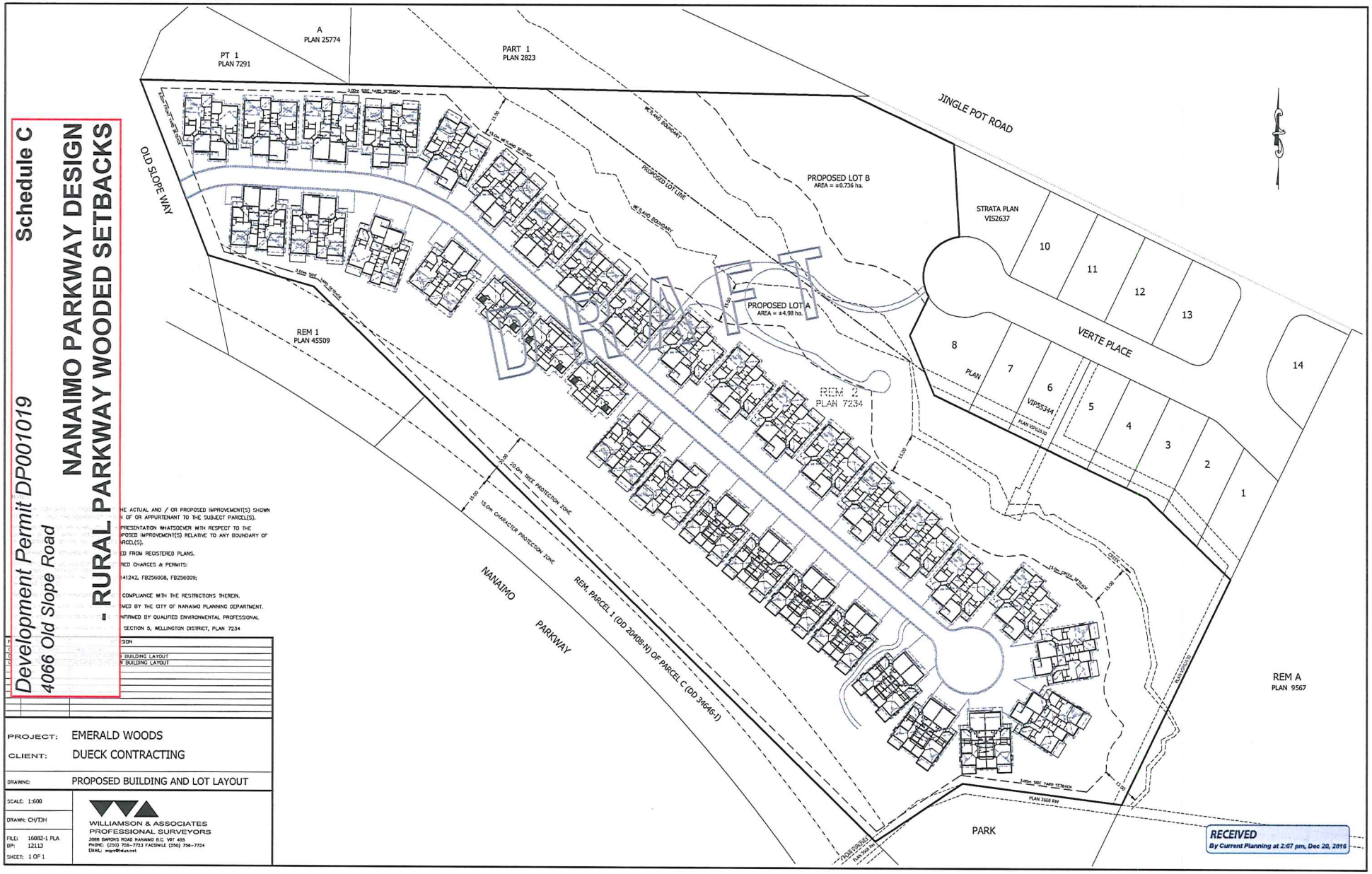
N

LOCATION PLAN

Subject Property

Civic: 4066 Old Slope Road
That Part of Lot 2, Section 5, Wellington District, Plan 7234
Lying to the North West of the North Westerly Boundary of
Plan 9567, Except Pat in Plan VIP55344


BC 1 CALL
1-800-474-6886
Schedule B
SITE PLAN
Development Permit DP001019
4066 Old Slope Road
LOCATION PLAN
N.T.S.
SITE
JINGLE POT ROAD
OLD SLOPE WAY
VERTE PLACE
NANAIMO PARKWAY
PROPOSED BERM
REM. PARCEL 1 (DD 204084-I) OF PARCEL C (DD 346746-I)
A PLAN 25774
PART 1 PLAN 2823
PT 1 PLAN 7291
3 PLAN 23933
Rem A PLAN 37845
1 PLAN VIP70870
Rem 1 PLAN 26969
A PLAN 38724
E DD7124N
C PLAN 3101
STRATA PLAN VIS2637
LOT A
LOT B
REM 1 PLAN 45509
REM 2 PLAN 7234
REM A PLAN 9567
PARK
Existing Berm
Proposed Berm
Wooden Environmental Fence Line
NOTES:
THE LOCATIONS OF EXISTING SERVICES ARE SHOWN APPROXIMATELY AND SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORK. EXISTING & PROPOSED SERVICES MAY REQUIRE ADJUSTMENT WHERE A CONFLICT OCCURS. THE ENGINEER SHALL BE NOTIFIED OF ANY CONFLICT.
SCALE 1:750
PRELIMINARY NOT FOR CONSTRUCTION
RECEIVED
By Current Planning at 9:32 am, Oct 13, 2016
LEGEND
WATERMAIN
STORM SEWER
SANITARY SEWER
GAS MAIN
ELECTRICAL DUCT
CULVERT & DITCH
DITCH INLET/OUTLET
SWALE
EDGE OF PAVEMENT
VALVE BOX
LIMIT OF CONSTRUCTION
HYDRANT
ABOVE GROUND FLUSHOUT
BELOW GROUND FLUSHOUT
CATCHBASIN
MANHOLE
CLEANOUT
HYDRO POLE
CAP
PLUG
STREETLIGHT
FENCE
SITE LEGAL DESCRIPTION
THAT PART OF LOT 2, SECTION 5, WELLINGTON DISTRICT, PLAN 7234 LYING TO THE NORTH WEST OF THE NORTH WESTERLY BOUNDARY OF PLAN 9567, EXCEPT PART IN PLAN VIP55344
BENCHMARK DESCRIPTION
ELEVATIONS ARE GEODETIC AND ARE REFERRED TO MONUMENT 89H5622 LOCATED AT THE INTERSECTION OF JINGLE POT ROAD AND OLD SLOPE PLACE. ELEVATION 103.309m
ENGINEER'S SEAL
HORIZONTAL SCALE 1:750
VERTICAL SCALE
DESIGN RHS
DRAWN dp
CHECKED
PLOT DATE 09-14-16
PRINT DATE
CLIENT NAME DUECK GENERAL CONTRACTING
PROJECT NAME 4066 OLD SLOPE PLACE
DRAWING TITLE SITE PLAN
NEWCASTLE ENGINEERING LTD.
4-3179 BARONS ROAD NANAIMO, B.C. V9T 5W5 PHONE: (250) 758-9553
PROJECT No. 0420-015
DRAWING No. 100
REVISION No. 00
CITY PLAN FILE No.
Rev. No. DATE BY REVISION DESCRIPTION ENG


Schedule C
NANAIMO PARKWAY DESIGN
- RURAL PARKWAY WOODED SETBACKS
Development Permit DP001019
4066 Old Slope Road
PT 1
PLAN 7291
A
PLAN 25774
PART 1
PLAN 2823
JINGLE POT ROAD
OLD SLOPE WAY
PROPOSED LOT B
AREA = ±0.736 ha.
PROPOSED LOT A
AREA = ±4.98 ha.
STRATA PLAN
VIS2637
VERTE PLACE
REM 1
PLAN 45509
REM 2
PLAN 7234
NANAIMO PARKWAY
REM. PARCEL 1 (DD 20408-N) OF PARCEL C (DD 34646-I)
REM A
PLAN 9567
PARK
PLAN 3668 RW
20.0m TREE PROTECTION ZONE
15.0m CHARACTER PROTECTION ZONE
DRAFT
RECEIVED
By Current Planning at 2:07 pm, Dec 20, 2016
PROJECT: EMERALD WOODS
CLIENT: DUECK CONTRACTING
DRAWING: PROPOSED BUILDING AND LOT LAYOUT
SCALE: 1:600
DRAWN: CH/TJH
FILE: 16082-1 PLA
BP: 12113
SHEET: 1 OF 1
WILLIAMSON & ASSOCIATES
PROFESSIONAL SURVEYORS
3089 BARONS ROAD NANAIMO B.C. V9T 4B5
PHONE (250) 758-7723 FACSIMILE (250) 756-7724
EMAIL: mail@wlaa.net

Schedule D

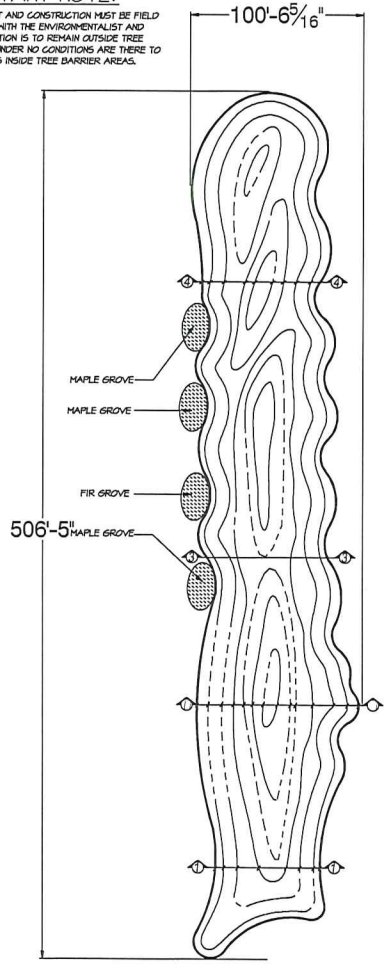
Development Permit DP001019

4066 Old Slope Road

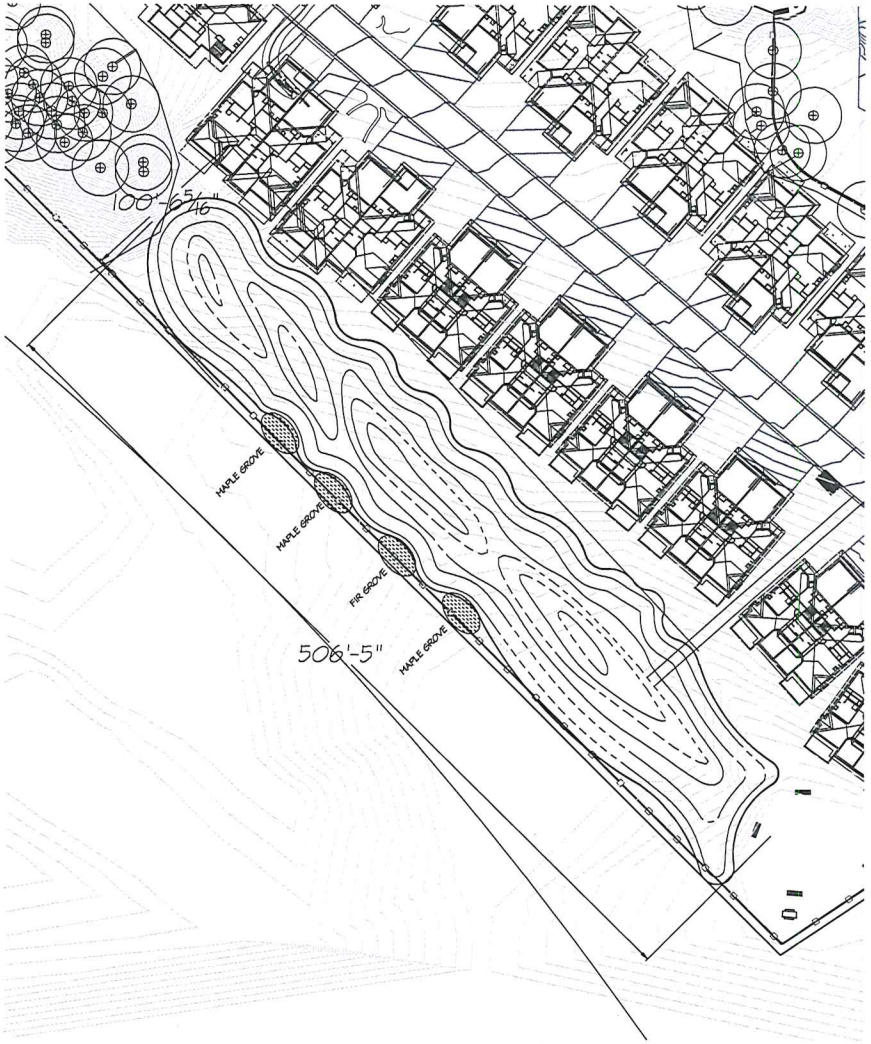
PROPOSED BERM LOCATION AND DESIGN

IMPORTANT NOTE:

BERM LAYOUT, FOOTPRINT AND CONSTRUCTION MUST BE FIELD FIT AND SUPERVISED WITH THE ENVIRONMENTALIST AND ARBORIST. CONSTRUCTION IS TO REMAIN OUTSIDE TREE PROTECTION ZONES AND UNDER NO CONDITIONS ARE THERE TO BE GRADE CHANGES INSIDE TREE BARRIER AREAS.



1 / L10 BERM FOOTPRINT
SCALE: 1'-0":31 "



□ / L10 BERM IN-SITU
SCALE: 1'-0":31 "

M2 LANDSCAPE ARCHITECTURE
#220 - 26 Lorne Mews
New Westminster, British Columbia
V3M 3L7
Tel: 604.553.0044
Fax: 604.553.0045
Email: office@m2la.com

NO.	DATE	REVISION DESCRIPTION	DR.
3	10th dec. 2	BERM DP SET	TK
2	10th DEC. 2	DP SUBMISSION	TK
1	10th DEC. 2	PRELIM DP	TK

SEAL:

PROJECT:
EMERALD WOODS
6044 OLD SLOPE PLACE
NANAIMO

DRAWING TITLE:
BERM FOOTPRINT

DATE: SEPT 22nd 2016	DRAWING NUMBER: L10
SCALE: 1/8"=1'-0"	
DRAWN: -TK	
DESIGN: -TK	
CHK'D: MM	
M2LA PROJECT NUMBER:	JOB 16054

IMPORTANT NOTE:

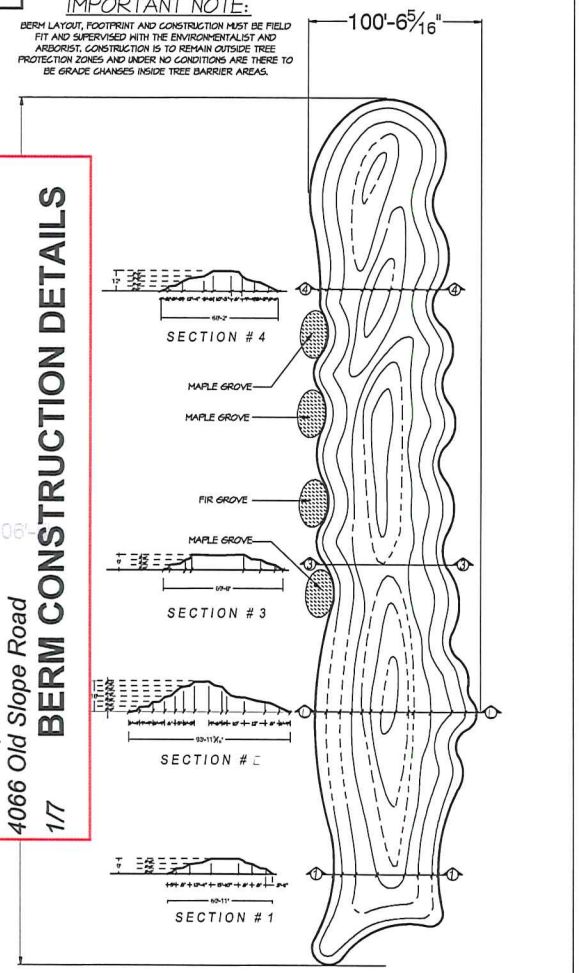
BERM LAYOUT, FOOTPRINT AND CONSTRUCTION MUST BE FIELD FIT AND SUPERVISED WITH THE ENVIRONMENTALIST AND ARBORIST. CONSTRUCTION IS TO REMAIN OUTSIDE TREE PROTECTION ZONES AND UNDER NO CONDITIONS ARE THERE TO BE GRADE CHANGES INSIDE TREE BARRIER AREAS.

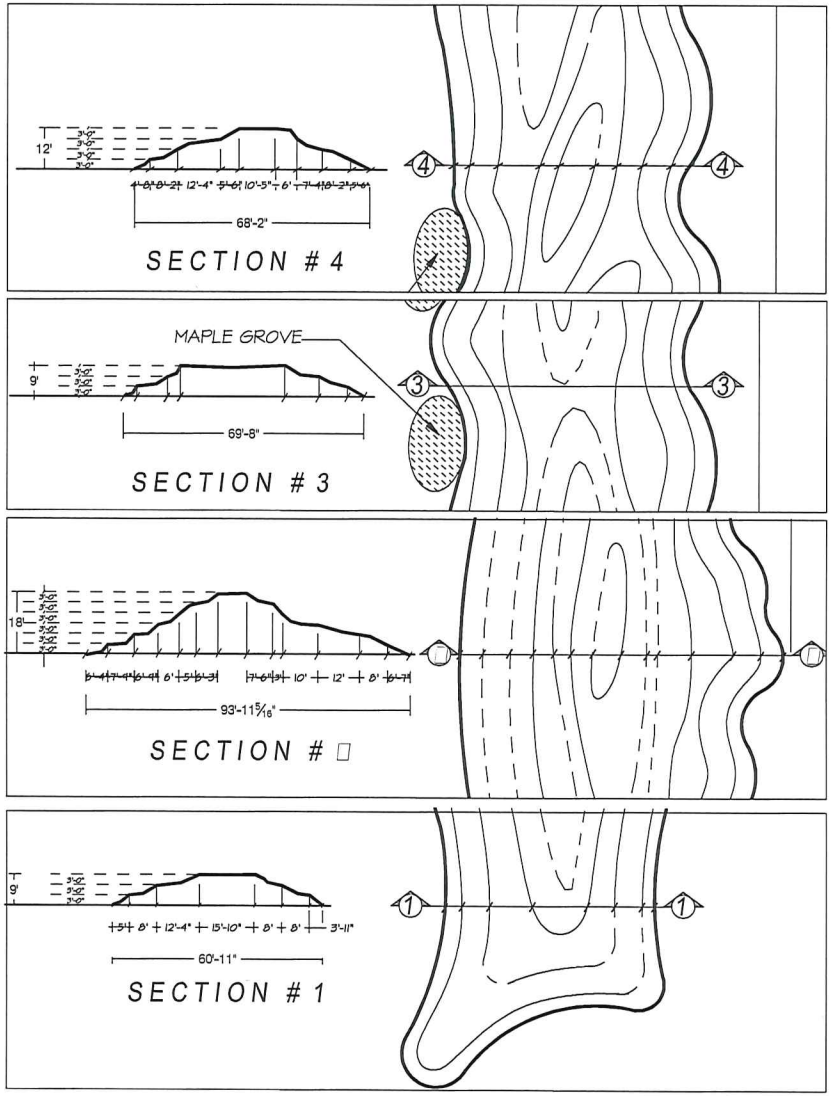
Development Permit DP001019 Schedule E

4066 Old Slope Road

1/7

BERM CONSTRUCTION DETAILS





L11 BERM TOPOGRAPHY (SECTIONS)
SCALE: 1'-0"=30'-0"

L11 BERM SECTIONS ENLARGED
SCALE: 1'-0"=16-0"

M2 LANDSCAPE ARCHITECTURE
#220 - 26 Lorne Mews
New Westminster, British Columbia
V3M 3L7
Tel: 604.553.0044
Fax: 604.553.0045
Email: office@m2la.com

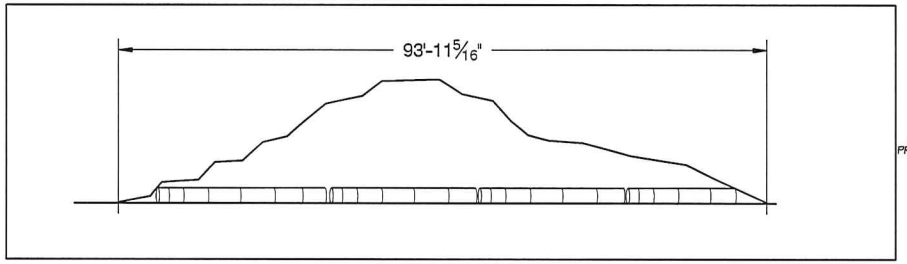
NO.	DATE	REVISION DESCRIPTION	DR.
3	2016 dec 23	BERM DP SET	TK
2	2016 DEC 6	DP SUBMISSION	TK
1	2016 DEC 6	PRELIM DP	TK

SEAL:

PROJECT:
EMERALD WOODS
6044 OLD SLOPE PLACE
NANAIMO

DRAWING TITLE:
BERM TOPOGRAPHY AND SECTIONS

DATE: SEPT 22nd 2016	DRAWING NUMBER: L11
SCALE: 1/64"=1'-0"	
DRAWN: TK	
DESIGN: TK	
CHK'D: MM	
M2LA PROJECT NUMBER:	JOB 16054



IMPORTANT NOTE:

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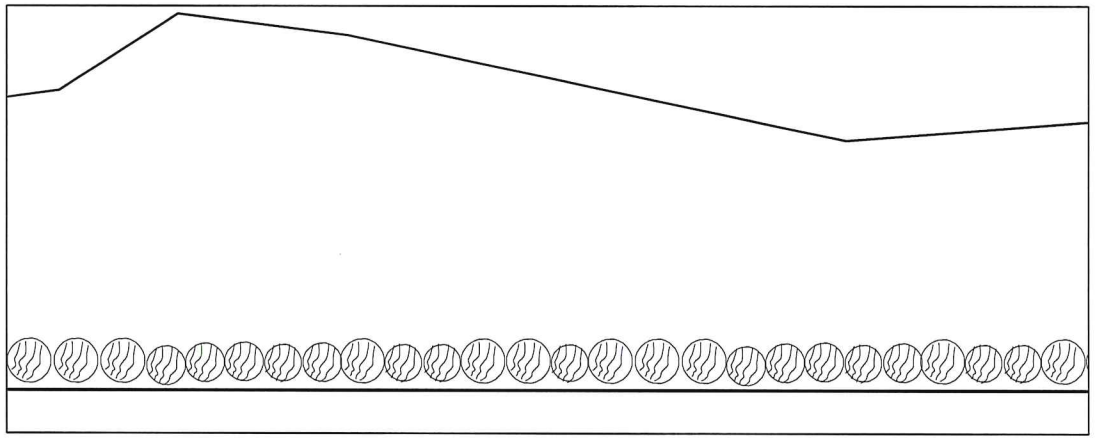
LAYER # 1 WOODY DE□RIS LAYER: □IEWING SOUTH WEST

SINGLE PAC□ END TO END □AC□ TO □AC□ (SCALE = 1/4")

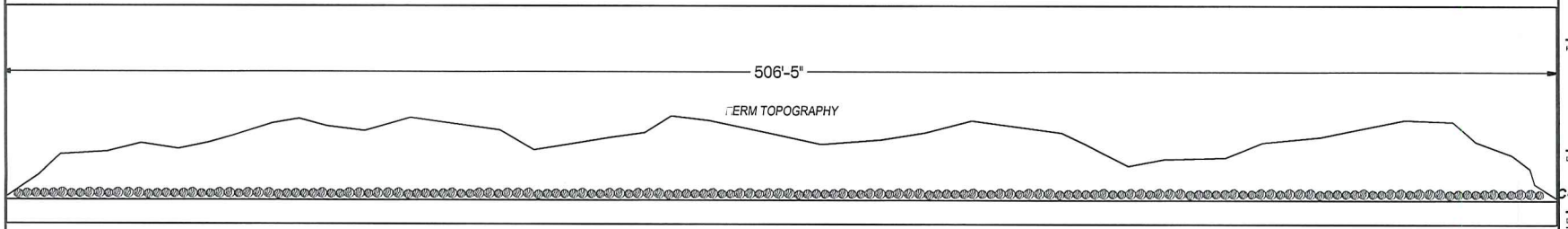
1 / L1□ LAYER #1 COURSE WOODY DE□RIS
SCALE: 1'-0"= 1'-0"



LAYER # 1 WOODY DE□RIS LAYER: □IEWING WEST EAST

SINGLE PAC□ END TO END □AC□ TO □AC□ (SCALE = 1/4")

□ / L1□ LAYER #1 COURSE WOODY DE□RIS
SCALE: 1'-0"= 4'-0"



LAYER # 1 WOODY DE□RIS LAYER: □IEWING WEST EAST

SINGLE PAC□ END TO END □AC□ TO □AC□ (SCALE = 1□16")

3 / L1□ LAYER #1 COURSE WOODY DE□RIS
SCALE: 1'-0"=16'-0"

M2 LANDSCAPE ARCHITECTURE

#220 - 26 Lorne Mews
New Westminster, British Columbia
V3M 3L7
Tel: 604.553.0044
Fax: 604.553.0045
Email: office@m2la.com

NO.	DATE	REVISION DESCRIPTION	DR.
3	'DD MM. 'Y	BERM DP SET	TK
2	'DD DEC.'Y	DP SUBMISSION	TK
1	'DD DEC.'Y	PRELIM DP	TK

SCAL:

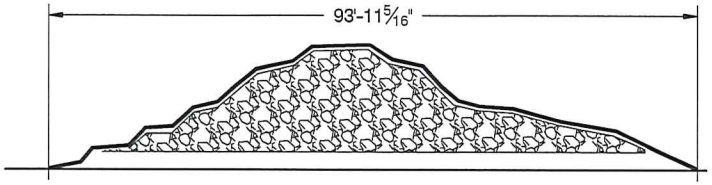
PROJECT:
EMERALD WOODS
6044 OLD SLOPE PLACE
NANAIMO

DRAWING TITLE:
LAYER 1
COURSE WOODY DEBRIS

DATE: SEPT 22nd 2016
SCALE: 1/4"=1'-0"
DRAWN: -TK
DESIGN: -TK
CHK'D: MM

DRAWING NUMBER:
L12

M2LA PROJECT NUMBER: JOB 16054



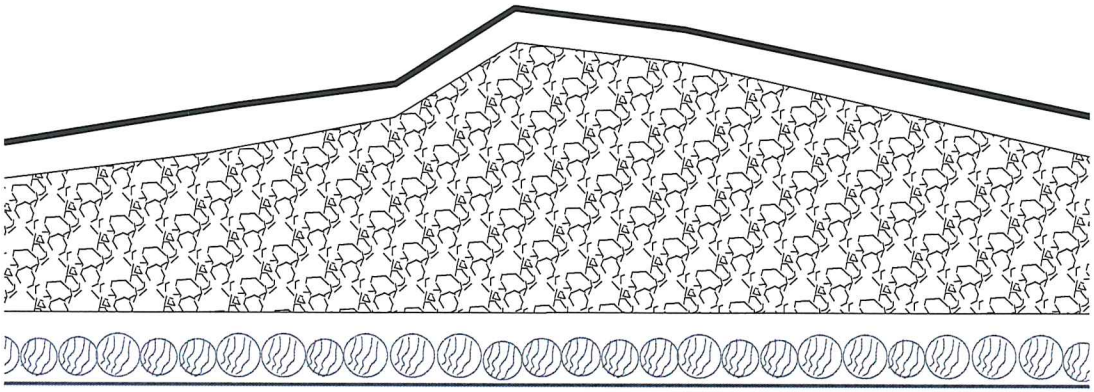
IMPORTANT NOTE:

TERM CONSTRUCTION MUST BE FIELD FIT AND SUPERVISED WITH THE ENVIRONMENTALIST AND ARBORIST. CONSTRUCTION IS TO REMAIN OUTSIDE TREE PROTECTION ZONES AND UNDER NO CONDITIONS ARE THERE TO BE GRADE CHANGES INSIDE TREE BARRIER AREAS.

LAYER # □ COAL SPOIL LAYER:

LOADS/COMPACTION AND CONSTRUCTION ON EACH LIFT
MUST BE REVIEWED AND SIGNED OFF BY THE GEOTECHNICAL AND STRUCTURAL ENGINEER

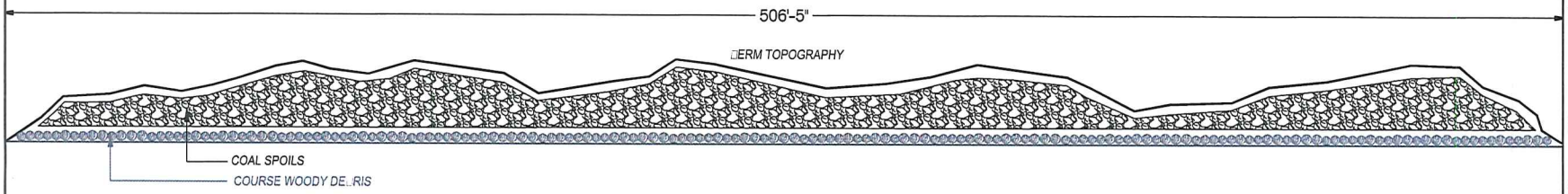
1/L13 LAYER # □ COAL SPOILS
SCALE: 1'-0"= 1'-0"



LAYER # □ COAL SPOIL LAYER:

LOADS/COMPACTION AND CONSTRUCTION ON EACH LIFT
MUST BE REVIEWED AND SIGNED OFF BY THE GEOTECHNICAL AND STRUCTURAL ENGINEER

□/L13 LAYER #□ COAL SPOILS
SCALE: 1'-0"= 4'-0"



LAYER # □ COAL SPOIL LAYER:

LOADS/COMPACTION AND CONSTRUCTION ON EACH LIFT
MUST BE REVIEWED AND SIGNED OFF BY THE GEOTECHNICAL AND STRUCTURAL ENGINEER

3/L13 LAYER #□ COAL SPOIL LAYER
SCALE: 1'-0"=16'-0"

M2 LANDSCAPE ARCHITECTURE

#220 - 26 Lorne Mews
New Westminster, British Columbia
V3M 3L7
Tel: 604.553.0044
Fax: 604.553.0045
Email: office@m2la.com

NO.	DATE	REVISION DESCRIPTION	DR.
3	2016 DEC. 2	BERM DP SET	TK
2	2016 DEC. 2	DP SUBMISSION	TK
1	2016 DEC. 1	PRELIM DP	TK

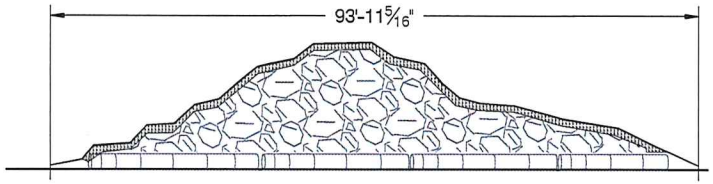
SEAL:

PROJECT:
EMERALD WOODS
6044 OLD SLOPE PLACE
NANAIMO

DRAWING TITLE:
LAYER 2 COAL SPOILS

DATE:	SEPT 22nd 2016
SCALE:	1/64"=1'-0"
DRAWN:	-TK
DESIGN:	-TK
CHK'D:	MH
M2LA PROJECT NUMBER:	JOB 16054

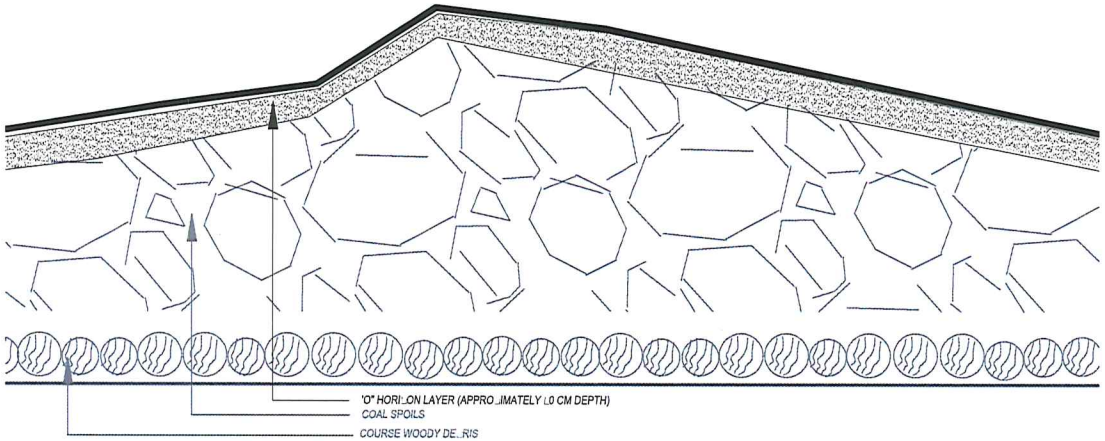
DRAWING NUMBER: **L13**



LAYER # 3 "O" HORI□ON LAYER:

APPRO□IMATE DEPTH IS □0 CM
(SCALE = 1/16")

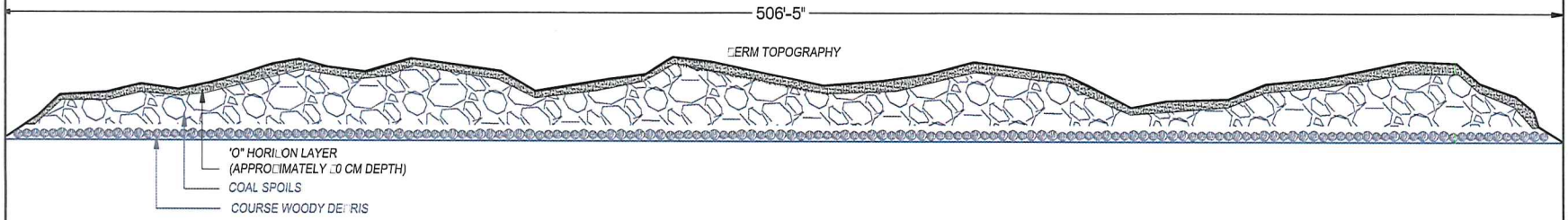
1 / L14 LAYER # 3 "0" HORI□ON LAYER (□0 CM DEPTH)
SCALE: 1'-0"= □-0"



LAYER # 3 "O" HORI□ON LAYER:

APPRO□IMATE DEPTH IS □0 CM
(SCALE = 1/16")

3 / L14 LAYER # 3 "0 HORI□ON LAYER" (□0 CM DEPTH)
SCALE: 1'-0"= 4'-0"



LAYER # 3 "O" HORI□ON LAYER:

APPRO□IMATE DEPTH IS □0 CM
(SCALE = 1/16")

3 / L14 LAYER # 3 "O" HORI□ON LAYER (□0 CM DEPTH)
SCALE: 1'-0"=16'-0"

M2 LANDSCAPE ARCHITECTURE
#220 - 26 Lorne Mews
New Westminster, British Columbia
V3M 3L7
Tel: 604.553.0044
Fax: 604.553.0045
Email: office@m2la.com

NO.	DATE	REVISION DESCRIPTION	DR.
3	20□ dec. 2	BERM DP SET	TK
2	20□ DEC. 2	DP SUBMISSION	TK
1	20□ DEC. 2	PRELIM DP	TK

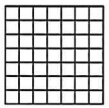
SEAL:

PROJECT:
EMERALD WOODS
6044 OLD SLOPE PLACE
NANAIMO

DRAWING TITLE:
LAYER 3
"O" HORIZON LAYER

DATE: SEPT 22nd 2016	DRAWING NUMBER:
SCALE: 1/8"=1'-0"	L14
DRAWN:-TK	
DESIGN:-TK	
CHK'D: MH	
M2LA PROJECT NUMBER:	JOB 16054

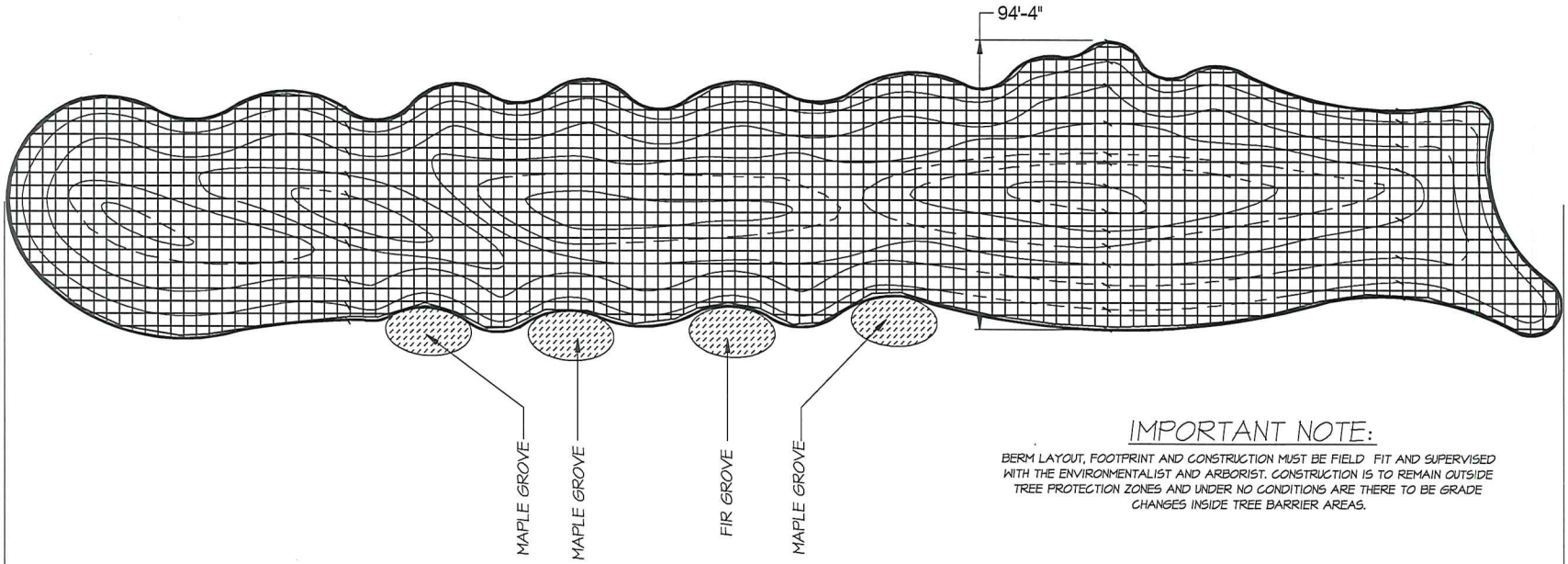
TERRA SEED MI□TURE



APPLICATION SEQUENCE:

TERRA SEED MI□TURE IS TO BE APPLIED FIRST.
MIXTURE TO INCLUDE THE FOLLOWING:

50% RED ALDER	(ALNUS RUBRA)
25% BIG LEAF MAPLE	(ACER MACROPHYLLUM)
10% BLACK HAWTHORN	(CRATAEGUS DOUGLASII)
10% NATIVE GRASSES	
5% PERENNIALS	(BEECH PEA, MILK WEED, INDIAN PAINT BRUSH, YARROW, HOOKERS ONION, GOLDEN ROD)



IMPORTANT NOTE:

BERM LAYOUT, FOOTPRINT AND CONSTRUCTION MUST BE FIELD FIT AND SUPERVISED WITH THE ENVIRONMENTALIST AND ARBORIST. CONSTRUCTION IS TO REMAIN OUTSIDE TREE PROTECTION ZONES AND UNDER NO CONDITIONS ARE THERE TO BE GRADE CHANGES INSIDE TREE BARRIER AREAS.

PLANT LAYER # 1 TERRA SEEDING MI□

1/L1□ □IRST PLANTING LAYER (TERRA SEEDING)
SCALE: 1'-0"= 16'-0"

M2 LANDSCAPE ARCHITECTURE
#220 - 26 Lorne Mews
New Westminster, British Columbia
V3M 3L7
Tel: 604.553.0044
Fax: 604.553.0045
Email: office@m2la.com

NO.	DATE	REVISION DESCRIPTION	DR.
3	2016.dec.2	BERM DP SET	TK
2	2016.DEC.8	DP SUBMISSION	TK
1	2016.DEC.6	PRELIM DP	TK

SEAL:

PROJECT:
EMERALD WOODS
6044 OLD SLOPE PLACE
NANAIMO

DRAWING TITLE:
PLANTING LAYER 1
TERRA SEEDING MIX

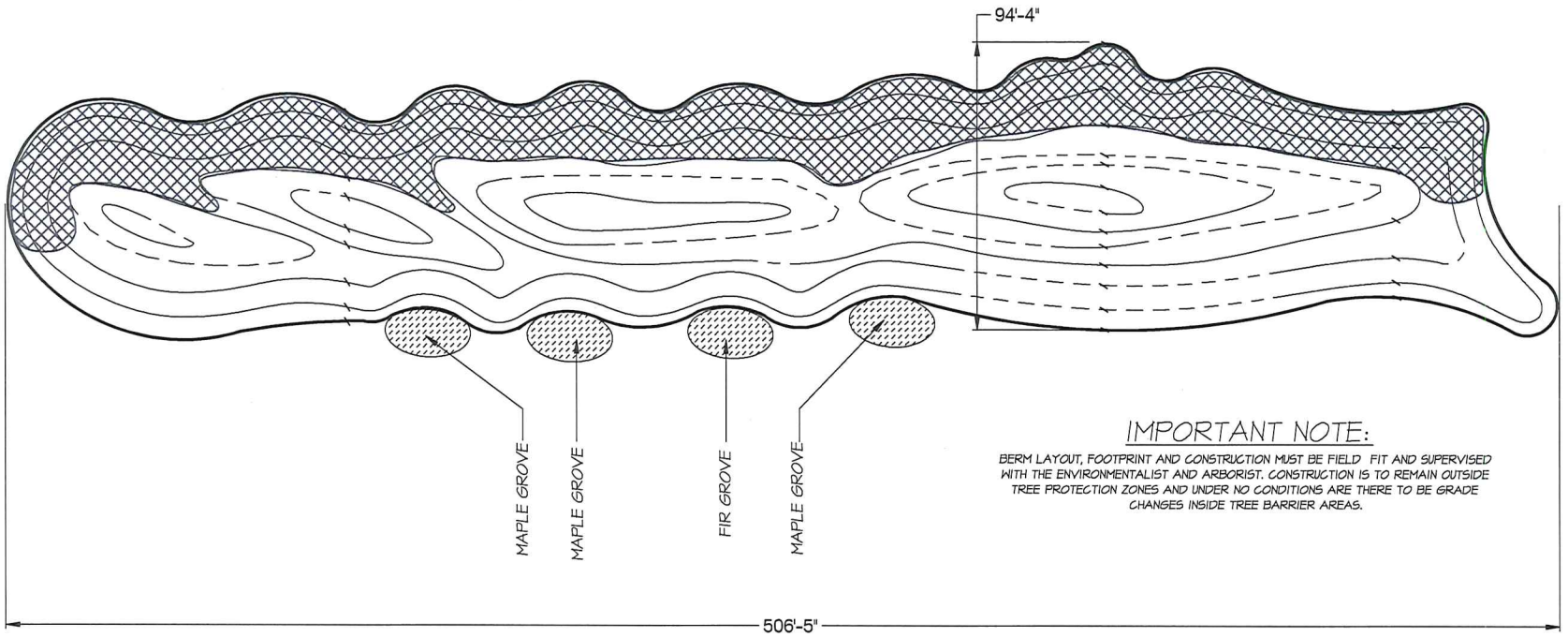
DATE: SEPT 22nd 2016	DRAWING NUMBER: L15
SCALE: 1/16"=1'-0"	
DRAWN: TK	
DESIGN: TK	
CHK'D: MM	
M2LA PROJECT NUMBER:	JOB 16054

TREE PLANTING

APPLICATION SEQUENCE: NORTH SIDE: AND LEEWARD SIDE:
(IE: THE PROTECTED LOWER SHELVES ON THE BERMS TYPOGRAPHY)

TREE PLANTING IS TO BE APPLIED SECOND.
MIXTURE TO INCLUDE THE FOLLOWING
#1 AND #2 POT SIZES AT 3 METERS ON CENTRE)

30% DOUGLAS FIR	PSEUDOTSUGA MENZIESII	(50 % #1 POT AND 50 % # 2 POT)
40% RED ALDER	(ALNUS RUBRA)	(50 % #1 POT AND 50 % # 2 POT)
15% BIG LEAF MAPLE	(ACER MACROPHYLLUM)	(50 % #1 POT AND 50 % # 2 POT)
15% BLACK HAWTHORN	(CRATAEGUS DOUGLASII)	(50 % #1 POT AND 50 % # 2 POT)



IMPORTANT NOTE:

BERM LAYOUT, FOOTPRINT AND CONSTRUCTION MUST BE FIELD FIT AND SUPERVISED WITH THE ENVIRONMENTALIST AND ARBORIST. CONSTRUCTION IS TO REMAIN OUTSIDE TREE PROTECTION ZONES AND UNDER NO CONDITIONS ARE THERE TO BE GRADE CHANGES INSIDE TREE BARRIER AREAS.

PLANT LAYER # □ TREE PLANTING

1/L16 SECOND PLANTING LAYER (TREE PLANTING)
SCALE: 1'-0"= 16'-0"

M2 LANDSCAPE ARCHITECTURE
#220 - 26 Lorne Mews
New Westminster, British Columbia
V3M 3L7
Tel: 604.553.0044
Fax: 604.553.0045
Email: office@m2la.com

NO.	DATE	REVISION DESCRIPTION	DR.
3	2016 dec. 2	BERM DP SET	TK
2	2016 DEC. 2	DP SUBMISSION	TK
1	2016 DEC. 2	PRELIM DP	TK

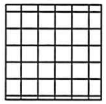
SEAL:

PROJECT:
EMERALD WOODS
6044 OLD SLOPE PLACE
NANAIMO

DRAWING TITLE:
PLANTING LAYER 2 TREE PLANTING

DATE: SEPT 22nd 2016
SCALE: 1/16"=1'-0"
DRAWN: TK
DESIGN: TK
CHK'D: MM
DRAWING NUMBER: L16
M2LA PROJECT NUMBER: JOB 16054

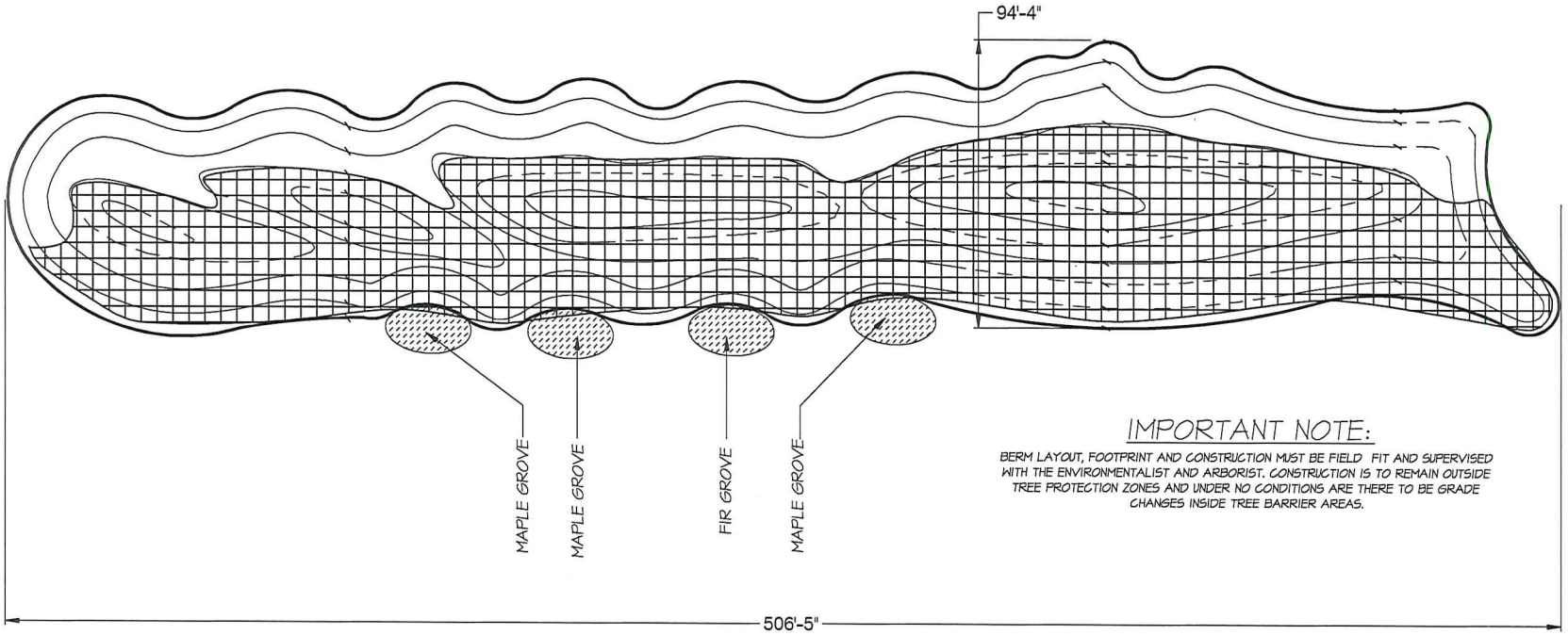
PLUG PLANTING



APPLICATION SEQUENCE: SOUTH SIDE:

PLUG PLANTING IS TO BE APPLIED THIRD.
MIXTURE TO INCLUDE THE FOLLOWING
PLUGS AT 2 METERS ON CENTRE)

40% DOUGLAS FIR	PSEUDOTSUGA MENZIESII
60% RED ALDER	(ALNUS RUBRA)



IMPORTANT NOTE:

BERM LAYOUT, FOOTPRINT AND CONSTRUCTION MUST BE FIELD FIT AND SUPERVISED WITH THE ENVIRONMENTALIST AND ARBORIST. CONSTRUCTION IS TO REMAIN OUTSIDE TREE PROTECTION ZONES AND UNDER NO CONDITIONS ARE THERE TO BE GRADE CHANGES INSIDE TREE BARRIER AREAS.

PLANT LAYER # 3 PLUG PLANTING

1/L16 THIRD PLANTING LAYER (PLUG PLANTING)
SCALE: 1'-0"= 16'-0"

M2 LANDSCAPE ARCHITECTURE
#220 - 26 Lorne Mews
New Westminster, British Columbia
V3M 3L7
Tel: 604.553.0044
Fax: 604.553.0045
Email: office@m2la.com

NO.	DATE	REVISION DESCRIPTION	DR.
3	2016 dec. 2	BERM DP SET	TK
2	2016 DEC 2	DP SUBMISSION	TK
1	2016 DEC 2	PRELIM DP	TK

SEAL:

PROJECT:
EMERALD WOODS
6044 OLD SLOPE PLACE
NANAIMO

DRAWING TITLE:
PLANTING LAYER 3
PLUG PLANTING

DATE: SEPT 22nd 2016	DRAWING NUMBER: L17
SCALE: 1/16"=1'-0"	
DRAWN: TK	
DESIGN: TK	
CHK'D: MH	
M2LA PROJECT NUMBER:	JOB 16054

M2
LANDSCAPE ARCHITECTURE

Dueck General Contracting
ATT: Blair Dueck
1A-4515 Uplands Dr.,
Nanaimo, BC V9T 6M8

Re: Landscape Design Rationale for Berm, DP 1019, 4066 Old Slope Place, Nanaimo

Design, General

The design of the proposed berm for the south-east corner of the subject property considers the existing site including topography, soils, tree preservation, wind, sound attenuation, and water conservation. The goal for the berm development is to use as much of the existing site materials as possible including old coal spoils, existing and repurposed O horizon material, coarse woody debris from existing tree removals, and imported growing medium.

Plant Selection

The planted landscape of the berm will be a combination of Red alder, Douglas fir, and seeded native grasses with a small percentage of other indigenous trees. This will mirror the condition of the existing landscape as a high majority of the existing trees are mature Douglas fir. A much lower percentage of native trees will be used including Big leaf maple and Black hawthorn.

Berm Shape

The shape of the berm will largely be directed by the volume of coal spoils of the site that will be used to create the berm and consideration for the existing tree locations along the most southerly extent of the site. We have a guesstimate as to the volume of material that will be repurposed of the site and will work closely with the developer to create a berm with interesting topography including depressions, high spots, and tabled areas with the goal of creating visual interest with varying and undulating topography rather than a large heterogeneous hill of soil. Tree preservation efforts will also impact the berm and in order to preserve more trees, the berm placement reflects the positioning of the preservation trees and to limit changing the grade and hydrology for preservation trees there.

Soil

Soil development for the berm is one of the keys to the success of the proposed plantings there. The foundation for the berm will be a combination of existing logs cleared of the site and the repurposed coal spoils found at the surface all over the site. O horizon, or the organic soils, will be stripped from the site by machine and stored at a predesignated staging area for sorting and filtering. It is not expected there is enough existing O horizon material to repurpose and to cover the berm and provide adequate growing medium depth for the trees there. Ideally, the depth of the growing medium for the purpose of this berm is fifty centimeters. A mix of existing and imported growing medium will be used in order to meet the recommended depth. If the existing material is not available in enough quantity to provide the minimum depth, imported growing medium will be required.

Character

Coarse woody debris will be used to introduce character to the berm and to provide fodder for soil development and habitat value for small creatures. The tree debris from the land clearing will provide large quantities of material to chip and apply to the berm including Big leaf maple, Douglas fir, Black hawthorn, and some Red alder. In addition to the wood chips, felled logs can be used under the coal spoils as well as securely placed on the berm. Using the existing site material will encourage and support biological activity, specifically the development of mycorrhizae associations between the plants and soil.

M2
LANDSCAPE ARCHITECTURE

Planting

Plant selection for the berm is based on what is seen on-site and appears successful. In this circumstance, success is what appears to be the most dominant and thriving species long-term. Plant installation methodology and material will include a mix of: person planted small trees from two gallon pots, person planted seedlings of Douglas fir and Red alder, seeded native grasses, perennials, and other trees. Terra-seeding is the recommended application method as it provides erosion control, growing medium, moisture retention, and nutrient availability. Seed is directly injected into the soil, with a tackifier, and pneumatically applied to the site. The seed mix will consist of a high majority of Red alder and native grasses with a lower percentage of native perennials like Beach pee, Milkweed, Yarrow, Hooker's onion, and Goldenrod. Nitrogen fixing plants, as the Red alder and Beach pee, will help develop the soil profile and provide available nutrients as the nutrient rich parts of the plants fall off (leaves and roots) and decompose. As the Red alder grows and fails, as they are want to do, the Douglas fir will easily digest the broken down tree parts for many years.

Construction and Layout

The construction and layout of the berm will include depressions, tabled areas, and more steep areas. Where available, planting and seeding will be more concentrated on the flatter areas where water run-off will be slower and percolation is more likely. Watering will be necessary for establishment of all species and most important in the dry summer months and on the windward side of the berm where wicking will occur. The timing of the seeding is important to ensure the seasonal weather supports germination and more ambient moisture from rain and cooler daytime temperatures. Either early autumn or early spring are the best times where seasonal rains are frequent and evening ambient temperatures are above ten degrees Celsius for germination.

Tree Preservation

The base of the berm and along the south will undulate around existing trees to ensure maximum potential for the long term of the preservation trees. The critical root zones will be observed and indicated with tree protection barriers and the grade will not change within the tree protection areas there.

Final Comments

The berm will be densely populated with indigenous trees and reflect the current condition of the existing site. Small nursery grown and seeded trees will be used to ensure successful establishment and the species used will provide a healthier soil to support the long-term health of the larger growing Douglas fir trees. Repurposed materials, including soils, coal spoils, and coarse woody debris will be used to encourage and enhance the naturally occurring soil biology. Undulations and topography of the berm will provide visual interest and areas where water will pool and percolate rather than run-off.

The height of the berm will be varied and up to five meters tall, will provide a level of sound attenuation or deflection for the residents of Emerald Woods and as the trees grow and mature will provide a pleasing and shaded condition from the hot sun.