LITTLE BEAR CREEK ADVANCED MITIGATION SITE

RC1730, UPI# 17-0071

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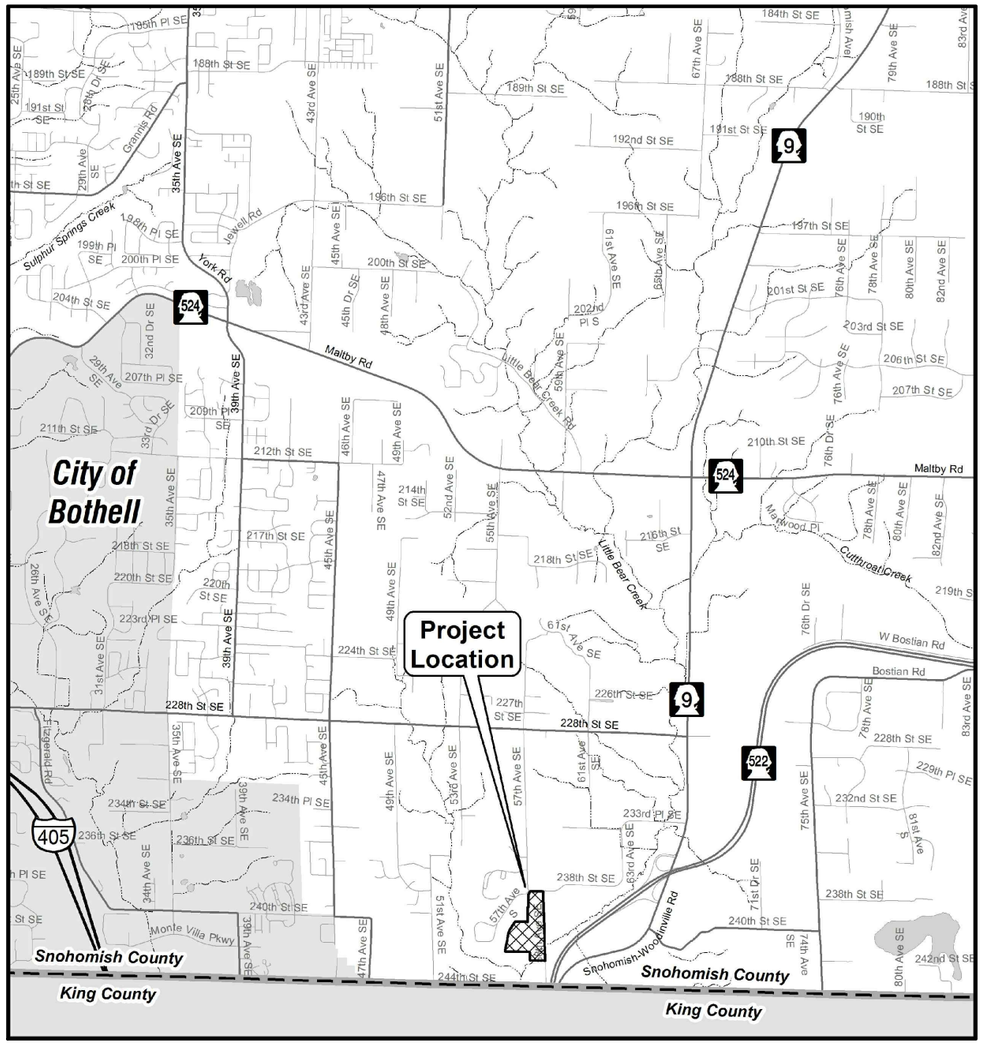

VICINITY MAP

NTS

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5309 Shilshole Ave
Suite 200
Seattle, WA 98107
www.esassoc.com

Snohomish County Officials

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STEVEN E. THOMSEN, P.E.

COUNTY ENGINEER
DOUGLAS W. McCORMICK, P.E.

EXECUTIVE
DAVE SOMERS

COUNCIL MEMBERS
NATE NEHRING – DIST. 1
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TERRY RYAN – DIST. 4
SAM LOW – DIST. 5

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2/27/2019 4:59:40 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\G01 TITLE SHEET.DWG

LEGEND

- PROJECT BENCHMARKS
- LOW IMPACT ROUTE POINT
- GRADING LIMIT POINT
- STREAM FILL
- SPLASH PAD
- EX. ANCHOR
- EX. MONITORING WELL
- EX. SIGNIFICANT DECIDUOUS TREE
- EX. SIGNIFICANT CONIFER
- EX. WATER SUPPLY WELL
- EX. WETLAND
- EX. WETLAND FLAG
- HUMMOCKS
- STAGING
- SWALE
- BOULDER
- HABITAT LOG
- LARGE WOOD STRUCTURE
- BRUSH PILE
- ARTIFICIAL SNAG
- SLOPE ARROW
- CAPA SIGN, TYPE 2
- CAPA SIGN, TYPE 1
- ROCK PILE
- DITCH BLOCK
- BOTTOM OF POND POINT
- TREE REMOVAL
- 180 — EX. MAJOR CONTOUR
- 181 — EX. MINOR CONTOUR
- 180 — PR. MAJOR CONTOUR
- 181 — PR. MINOR CONTOUR
- EX. DITCH / STREAM
- PR. STREAM CENTERLINE
- OHW — EX. OHWM
- THW — THALWEG
- TOP OF BANK
- WETLAND BOUNDARY
- PROPERTY LINE
- RIGHT OF WAY BOUNDARY
- RIGHT OF WAY CENTERLINE
- ACCESS ROUTES
- LGP ACCESS ROUTE
- P — POWER LINE
- FO — FIBER OPTICS
- G — GAS LINE
- SD — STORM DRAIN
- T — UNDERGROUND TELEPHONE LINE
- W — WATER GRAVITY LINE
- CG — CLEARING LIMITS
- EDGE OF PAVEMENT
- EDGE OF EX VEGETATION
- EXISTING BUILDINGS
- FENCE
- GRADING LIMITS
- GRAVEL ROAD
- ROADWAY
- COMPOST SOCK
- HVF — HIGH VISIBILITY FENCE
- SF — SILT FENCE
- DIVERSION PIPE

ABBREVIATIONS

APPROX	APPROXIMATE
BMP	BEST MANAGEMENT PRACTICE
CAPA	CRITICAL AREA PROTECTION AREA
CFS	CUBIC FEET PER SECOND
CONT	CONTINUED
DBH	DIAMETER AT BREAST HEIGHT
DIA	DIAMETER
E	EAST, EASTING
EA	EACH
ESC	EROSION AND SEDIMENT CONTROL
EX.	EXISTING
FT	FEET
GAL.	GALLON
HVF	HIGH VISIBILITY FENCE
IN	INCH
LBC	LITTLE BEAR CREEK
LF	LINEAR FEET
LGP	LOW GROUND PRESSURE
MAX	MAXIMUM
MIN	MINIMUM
N	NORTH, NORTHING
NAVD88	NORTH AMERICAN VERTICAL DATUM OF 1988
NGPA	NATIVE GROWTH PROTECTION AREA
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OHW	ORDINARY HIGH WATER
PIP	PROTECT IN PLACE
PR.	PROPOSED
PVC	POLYVINYL CHLORIDE
S	SOUTH
SHT	SHEET
SPCC	SPILL PREVENTION, CONTROL AND COUNTERMEASURES
SWPPP	STORMWATER POLLUTION PREVENTION PLAN
TESC	TEMPORARY EROSION AND SEDIMENT CONTROL
TYP	TYPICAL
VERT	VERTICAL
W	WEST

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REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

LEGENDS AND ABBREVIATIONS

REFERENCE SHEET NO. G02

SHEET 2 OF 37 SHEETS

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NOTES

GENERAL

1. THE GOAL OF THIS PROJECT IS HABITAT CREATION AND RESTORATION.
   - PRESERVE EXISTING VEGETATION, AS SHOWN
   - AVOID UNNECESSARY SOIL COMPACTION
   - BUILD FEATURES IN NATURAL, CURVED LINES AS SHOWN ON PLANS
2. REMOVAL OF SEDIMENT AND VEGETATION SHALL NOT EXCEED THE MINIMUM REQUIRED TO COMPLETE THE PROJECT TO THE LINES AND GRADES SHOWN ON THE DRAWINGS.
3. MOST STRUCTURES, FOUNDATIONS, AND KNOWN UTILITIES ON SITE WILL BE DEMOLISHED BY OTHERS BEFORE CONSTRUCTION BEGINS.
4. A SIGNED SET OF WORKING PLANS AND SPECIFICATIONS SHALL BE KEPT AT THE JOB SITE AT ALL TIMES ON WHICH ALL CHANGES OR VARIATIONS IN THE WORK ARE TO BE RECORDED AND/ OR CORRECTED DAILY AND SUBMITTED TO THE OWNER AT THE COMPLETION OF WORK. ALL CHANGES TO BE APPROVED BY THE ENGINEER.

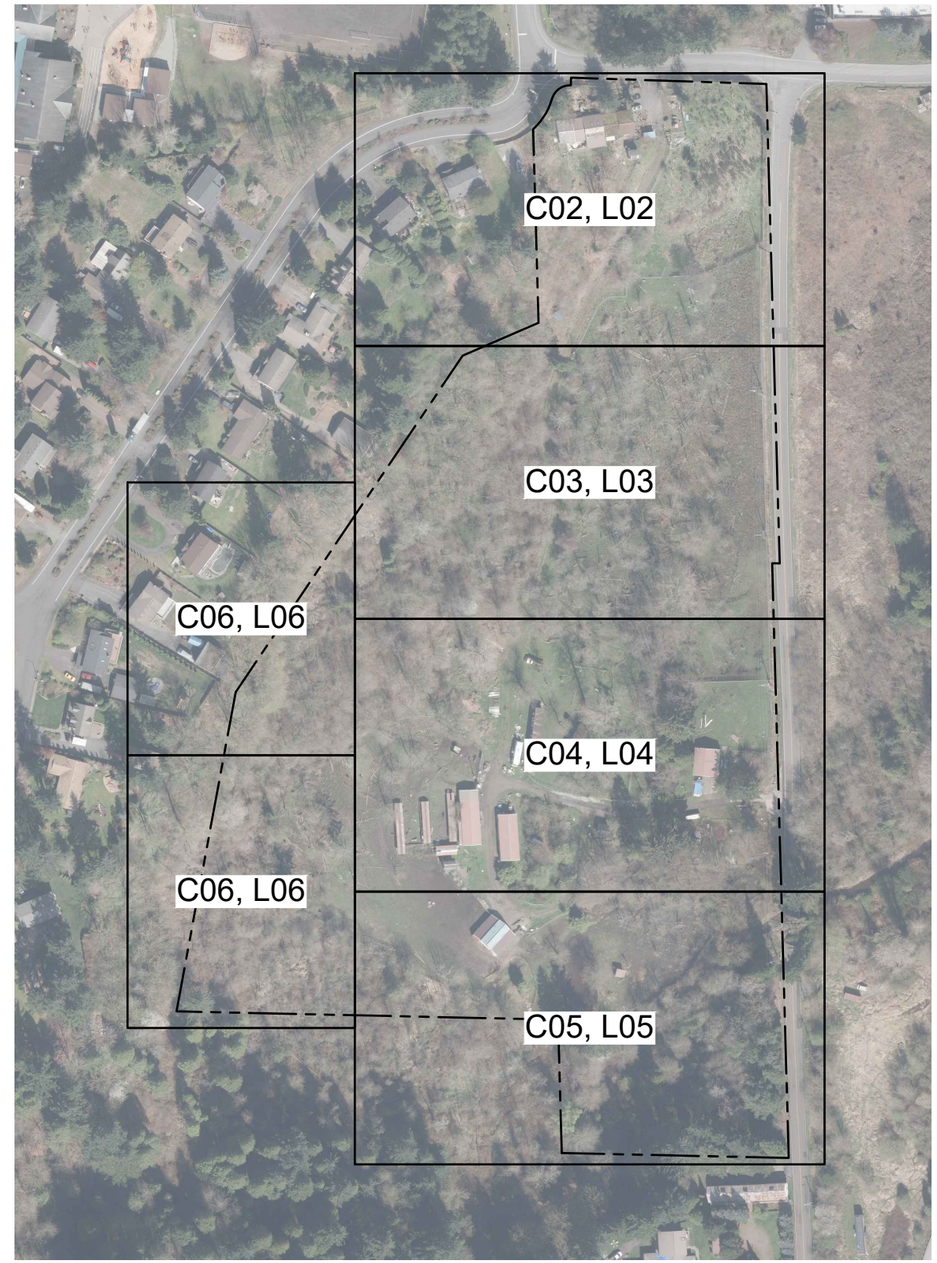
UTILITIES

1. THE CONTRACTOR SHALL MAKE ITS OWN ASSESSMENT REGARDING THE PRESENCE OF EXISTING UTILITIES AND VERIFY ALL UTILITY INFORMATION AS REQUIRED BY LAW.
2. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (USA), 1-800-227-2600 OR 811, A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

EROSION AND SEDIMENT CONTROL

1. ALL GRADING SHALL COMPLY WITH TITLE 30.63A AND 30.63B OF THE SNOHOMISH COUNTY UNIFIED DEVELOPMENT CODE.
2. THE CONTRACTOR WILL IDENTIFY AN EROSION AND SEDIMENT CONTROL LEAD. THE LEAD SHALL IMPLEMENT THE TESC PLAN AND THE SWPPP AND UPDATE THE SWPPP AS REQUIRED.
3. FIELD MARKING: BEFORE PERFORMING ANY SITE DISTURBING ACTIVITY INCLUDING CLEARING OR GRADING, THE CLEARING LIMITS SHALL BE LOCATED AND STAKED BY THE PROJECT SURVEYOR, OR AS DIRECTED BY THE ENGINEER.
4. THE TEMPORARY EROSION AND SEDIMENT CONTROL FACILITIES SHALL BE CONSTRUCTED PRIOR TO ANY GRADING OR EXTENSIVE LAND CLEARING IN ACCORDANCE WITH THE PLANS AND AS DIRECTED BY THE ENGINEER. IN NO EVENT SHALL SEDIMENT LADEN RUNOFF CAUSE A VIOLATION OF TURBIDITY OR ANY OTHER STATE WATER QUALITY STANDARD.
5. CLEARING, GRADING AND RE-VEGETATION ACTIVITIES SHALL BE TIMED TO MINIMIZE EXPOSED GROUND.
6. SOIL STABILIZATION: DURING THE DRY SEASON (APRIL 1 TO SEPTEMBER 30), NO SOILS SHALL BE EXPOSED FOR MORE THAN SEVEN DAYS. DURING THE WET SEASON (OCTOBER 1 THROUGH MARCH 3) NO SOILS SHALL BE EXPOSED FOR MORE THAN TWO DAYS. IF EXPOSED SOILS WILL REMAIN UNWORKED FOR MORE THAN THE NUMBER OF DAYS LISTED, THEY SHALL BE STABILIZED BY SUITABLE APPLICATION OF SOIL STABILIZATION BMP'S, SUCH AS SEEDING, FERTILIZING, AND MULCHING. DURING THE WET SEASON, SEEDED SLOPES SHOULD BE COVERED WITH CLEAR PLASTIC TO FACILITATE NEW GRASS GROWTH.
7. PROTECTION OF ADJACENT PROPERTIES: PROPERTIES ADJACENT TO THE PROJECT SITE SHALL BE PROTECTED FROM SEDIMENT DEPOSITION.
8. CONTROL OF OFF-SITE EROSION: PROPERTIES AND WATERWAYS DOWNSTREAM FROM THE PROJECT SITE SHALL BE PROTECTED FROM EROSION DUE TO INCREASES IN THE CONCENTRATION, VOLUME, VELOCITY, AND/OR PEAK FLOW RATE OF STORM WATER RUNOFF FROM THE PROJECT SITE.
9. MAINTENANCE: ALL EROSION AND SEDIMENT CONTROL FACILITIES AND PRACTICES SHALL BE INSPECTED ON A REGULAR BASIS AND SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. INSPECTION AND MAINTENANCE SHALL BE PERFORMED A MINIMUM OF ONCE A WEEK, IMMEDIATELY FOLLOWING A MAJOR STORM EVENT, AT LEAST ONCE DURING PROLONGED RAINFALL.
10. FOR ALL TEMPORARY OR PERMANENT SEEDING, THE CONTRACTOR SHALL PROVIDE SUFFICIENT IRRIGATION TO ASSURE THE GROWTH AND VITALITY OF THE SEEDED AREAS.
11. ALL STORM DRAIN INLETS MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT STORMWATER RUNOFF SHALL NOT ENTER THE CONVEYANCE SYSTEM WITH FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
12. EXPOSED AREAS AND/OR SLOPES SHALL BE PROTECTED FROM EROSIVE FLOWS AND CONCENTRATED FLOWS UNTIL PERMANENT SITE COVER AND DRAINAGE CONVEYANCE SYSTEMS ARE IN PLACE.
13. SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH BMP'S WITHIN 24 HOURS OF FORMATION.
14. THE TESC FACILITIES SHOWN ON THESE PLANS ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE 'ESC' FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.
15. THE TESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN THE 48 HOURS FOLLOWING A MAJOR STORM EVENT.
16. ROADWAYS AND OTHER PAVED AREAS SHALL BE MAINTAINED TO BE FREE AND CLEAR OF TRACKED SEDIMENT. ADDITIONAL MEASURES, SUCH AS STREET SWEEPING, MAY BE REQUIRED.
17. REMOVAL OF TESC MEASURES: THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL BMP'S AND ACCUMULATED SEDIMENT WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THEY ARE NO LONGER NECESSARY, AS DIRECTED BY THE ENGINEER.
18. THE CONTRACTOR SHALL SUBMIT A SPILL PREVENTION, CONTROL AND COUNTERMEASURES PLAN (SPCC) FOR APPROVAL. WASTES GENERATED FROM THE PROJECT SHALL BE DISPOSED OF IN AN APPROVED MANNER.

KEY MAP



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100 0 100 200
SCALE IN FEET

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REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

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SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

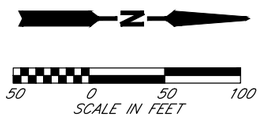
GENERAL NOTES

REFERENCE SHEET NO. G03

SHEET 3 OF 37 SHEETS

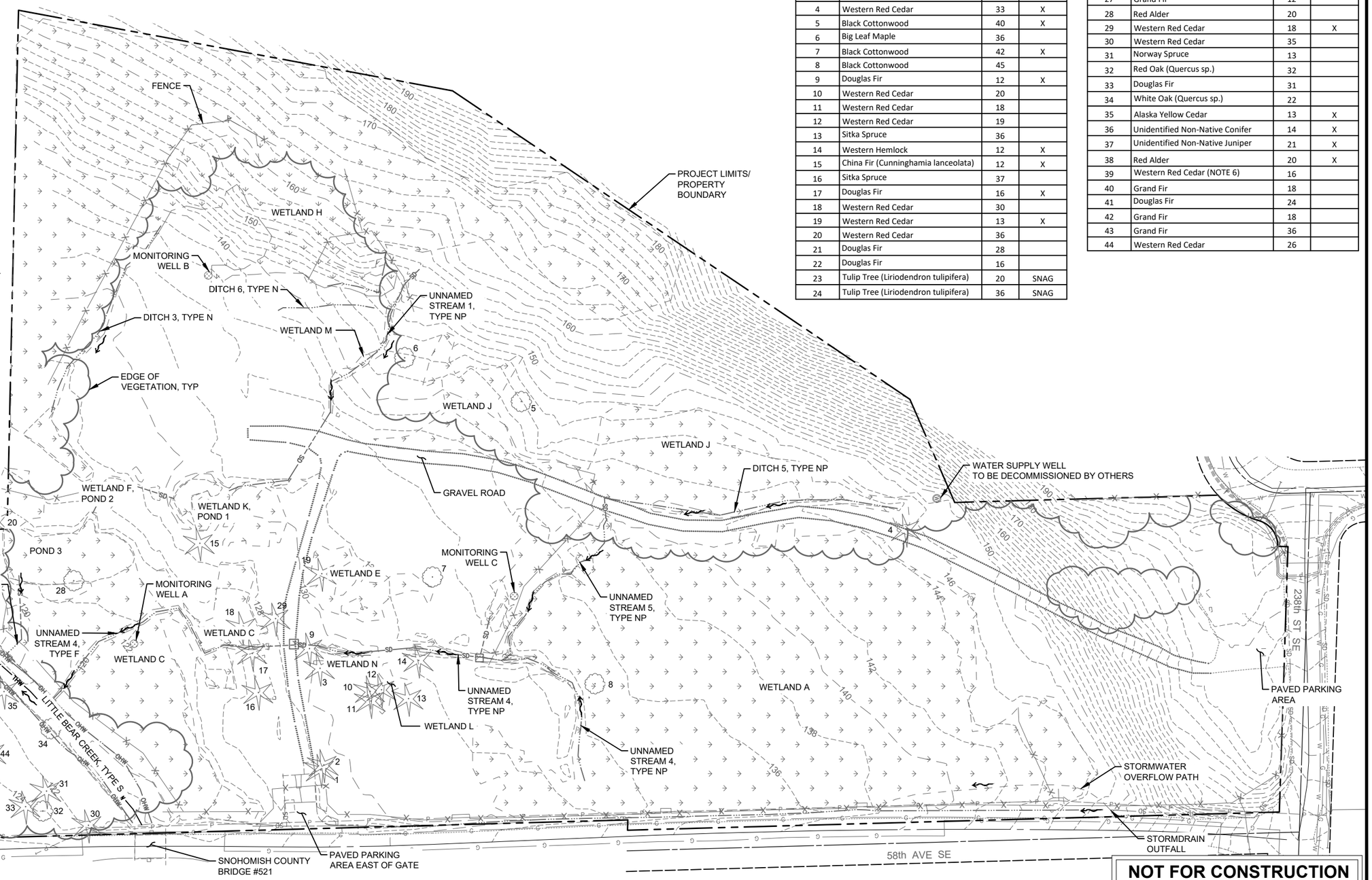
2/27/2019 5:00:03 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\G03 GENERAL NOTES.DWG

SECTION 34, T27N, R5E, W.M.



NOTES

1. EXISTING TOPOGRAPHY IS BASED ON GROUND SURVEYS CONDUCTED BY DAVID EVANS AND ASSOCIATES (DEA) IN SUMMER 2018. CONTOURS ARE APPROXIMATE BASED ON GROUND SURVEY TRANSECTS AND SPOT ELEVATIONS.
2. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), FEET.
3. THE COORDINATE GRID IS BASED ON LOCAL BENCHMARKS AND CONTROL. SEE PROJECT BENCHMARKS ON SHEET G05.
4. THE EXISTING GRADE REFLECTS SITE CONDITIONS AT THE TIME OF THE SURVEYS. CONTRACTOR SHALL VERIFY GRADES AND EXISTING CONDITIONS AND FEATURES THAT MAY AFFECT THE WORK PRIOR TO COMMENCING WORK. NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
5. EDGE OF VEGETATION REPRESENTS LIMITS OF FOREST CANOPY AS DIGITIZED FROM AERIAL IMAGERY. TREES ARE NOT SHOWN TO SCALE.
6. NO LOCATION POINT WAS COLLECTED FOR TREE NO. 39.



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SIGNIFICANT TREE TABLE			
NO.	SPECIES	DBH	REMOVE
1	Ponderosa Pine	16	
2	Douglas Fir	16	
3	Western Red Cedar	13	
4	Western Red Cedar	33	X
5	Black Cottonwood	40	X
6	Big Leaf Maple	36	
7	Black Cottonwood	42	X
8	Black Cottonwood	45	
9	Douglas Fir	12	X
10	Western Red Cedar	20	
11	Western Red Cedar	18	
12	Western Red Cedar	19	
13	Sitka Spruce	36	
14	Western Hemlock	12	X
15	China Fir (Cunninghamia lanceolata)	12	X
16	Sitka Spruce	37	
17	Douglas Fir	16	X
18	Western Red Cedar	30	
19	Western Red Cedar	13	X
20	Western Red Cedar	36	
21	Douglas Fir	28	
22	Douglas Fir	16	
23	Tulip Tree (Liriodendron tulipifera)	20	SNAG
24	Tulip Tree (Liriodendron tulipifera)	36	SNAG

SIGNIFICANT TREE TABLE			
NO.	SPECIES	DBH	REMOVE
25	Tulip Tree (Liriodendron tulipifera)	29	SNAG
26	Unidentified Non-native Deciduous	32	SNAG
27	Grand Fir	12	
28	Red Alder	20	
29	Western Red Cedar	18	X
30	Western Red Cedar	35	
31	Norway Spruce	13	
32	Red Oak (Quercus sp.)	32	
33	Douglas Fir	31	
34	White Oak (Quercus sp.)	22	
35	Alaska Yellow Cedar	13	X
36	Unidentified Non-Native Conifer	14	X
37	Unidentified Non-Native Juniper	21	X
38	Red Alder	20	X
39	Western Red Cedar (NOTE 6)	16	
40	Grand Fir	18	
41	Douglas Fir	24	
42	Grand Fir	18	
43	Grand Fir	36	
44	Western Red Cedar	26	

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SNOHOMISH COUNTY ENGINEER
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SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS
FUNDING NO.

LITTLE BEAR CREEK ADVANCED MITIGATION SITE
EXISTING CONDITIONS

REFERENCE SHEET NO. G04
SHEET 4 OF 37 SHEETS

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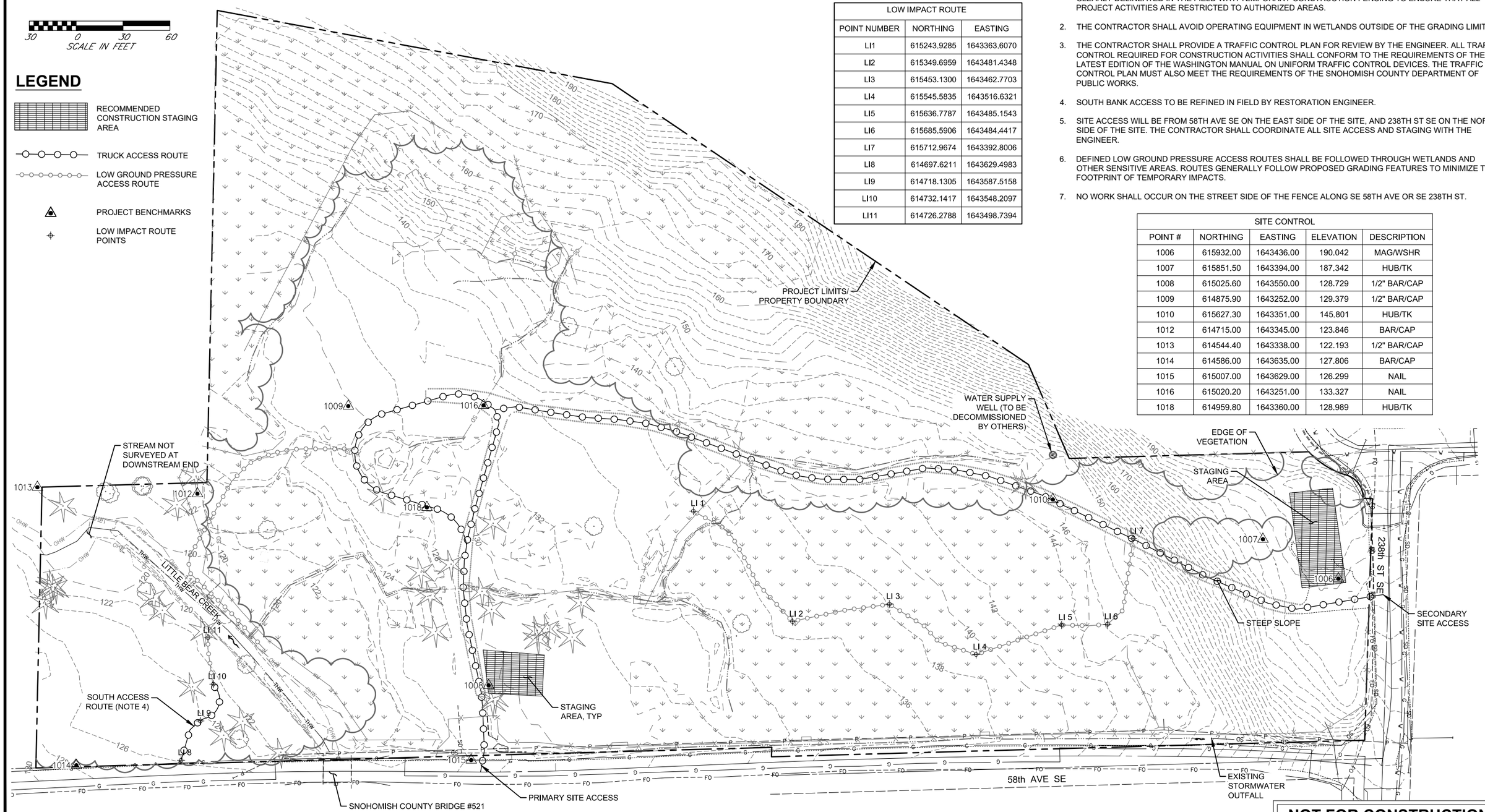
SECTION 34, T27N, R5E, W.M.

LEGEND

- RECOMMENDED CONSTRUCTION STAGING AREA
- TRUCK ACCESS ROUTE
- LOW GROUND PRESSURE ACCESS ROUTE
- PROJECT BENCHMARKS
- LOW IMPACT ROUTE POINTS

30 0 30 60
SCALE IN FEET

LOW IMPACT ROUTE		
POINT NUMBER	NORTHING	EASTING
LI1	615243.9285	1643363.6070
LI2	615349.6959	1643481.4348
LI3	615453.1300	1643462.7703
LI4	615545.5835	1643516.6321
LI5	615636.7787	1643485.1543
LI6	615685.5906	1643484.4417
LI7	615712.9674	1643392.8006
LI8	614697.6211	1643629.4983
LI9	614718.1305	1643587.5158
LI10	614732.1417	1643548.2097
LI11	614726.2788	1643498.7394



NOTES

1. PRIOR TO CONSTRUCTION, THE LIMITS OF WORK FOR CONSTRUCTION, ACCESS AND STAGING WILL BE CLEARLY DELINEATED IN THE FIELD WITH TEMPORARY CONSTRUCTION FENCING TO ENSURE THAT ALL PROJECT ACTIVITIES ARE RESTRICTED TO AUTHORIZED AREAS.
2. THE CONTRACTOR SHALL AVOID OPERATING EQUIPMENT IN WETLANDS OUTSIDE OF THE GRADING LIMITS.
3. THE CONTRACTOR SHALL PROVIDE A TRAFFIC CONTROL PLAN FOR REVIEW BY THE ENGINEER. ALL TRAFFIC CONTROL REQUIRED FOR CONSTRUCTION ACTIVITIES SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITION OF THE WASHINGTON MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. THE TRAFFIC CONTROL PLAN MUST ALSO MEET THE REQUIREMENTS OF THE SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS.
4. SOUTH BANK ACCESS TO BE REFINED IN FIELD BY RESTORATION ENGINEER.
5. SITE ACCESS WILL BE FROM 58TH AVE SE ON THE EAST SIDE OF THE SITE, AND 238TH ST SE ON THE NORTH SIDE OF THE SITE. THE CONTRACTOR SHALL COORDINATE ALL SITE ACCESS AND STAGING WITH THE ENGINEER.
6. DEFINED LOW GROUND PRESSURE ACCESS ROUTES SHALL BE FOLLOWED THROUGH WETLANDS AND OTHER SENSITIVE AREAS. ROUTES GENERALLY FOLLOW PROPOSED GRADING FEATURES TO MINIMIZE THE FOOTPRINT OF TEMPORARY IMPACTS.
7. NO WORK SHALL OCCUR ON THE STREET SIDE OF THE FENCE ALONG SE 58TH AVE OR SE 238TH ST.

SITE CONTROL				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1006	615932.00	1643436.00	190.042	MAG/WSHR
1007	615851.50	1643394.00	187.342	HUB/TK
1008	615025.60	1643550.00	128.729	1/2" BAR/CAP
1009	614875.90	1643252.00	129.379	1/2" BAR/CAP
1010	615627.30	1643351.00	145.801	HUB/TK
1012	614715.00	1643345.00	123.846	BAR/CAP
1013	614544.40	1643338.00	122.193	1/2" BAR/CAP
1014	614586.00	1643635.00	127.806	BAR/CAP
1015	615007.00	1643629.00	126.299	NAIL
1016	615020.20	1643251.00	133.327	NAIL
1018	614959.80	1643360.00	128.989	HUB/TK

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LITTLE BEAR CREEK ADVANCED MITIGATION SITE

PROPOSED ACCESS AND BENCHMARKS

REFERENCE SHEET NO. G05

SHEET 5 OF 37 SHEETS

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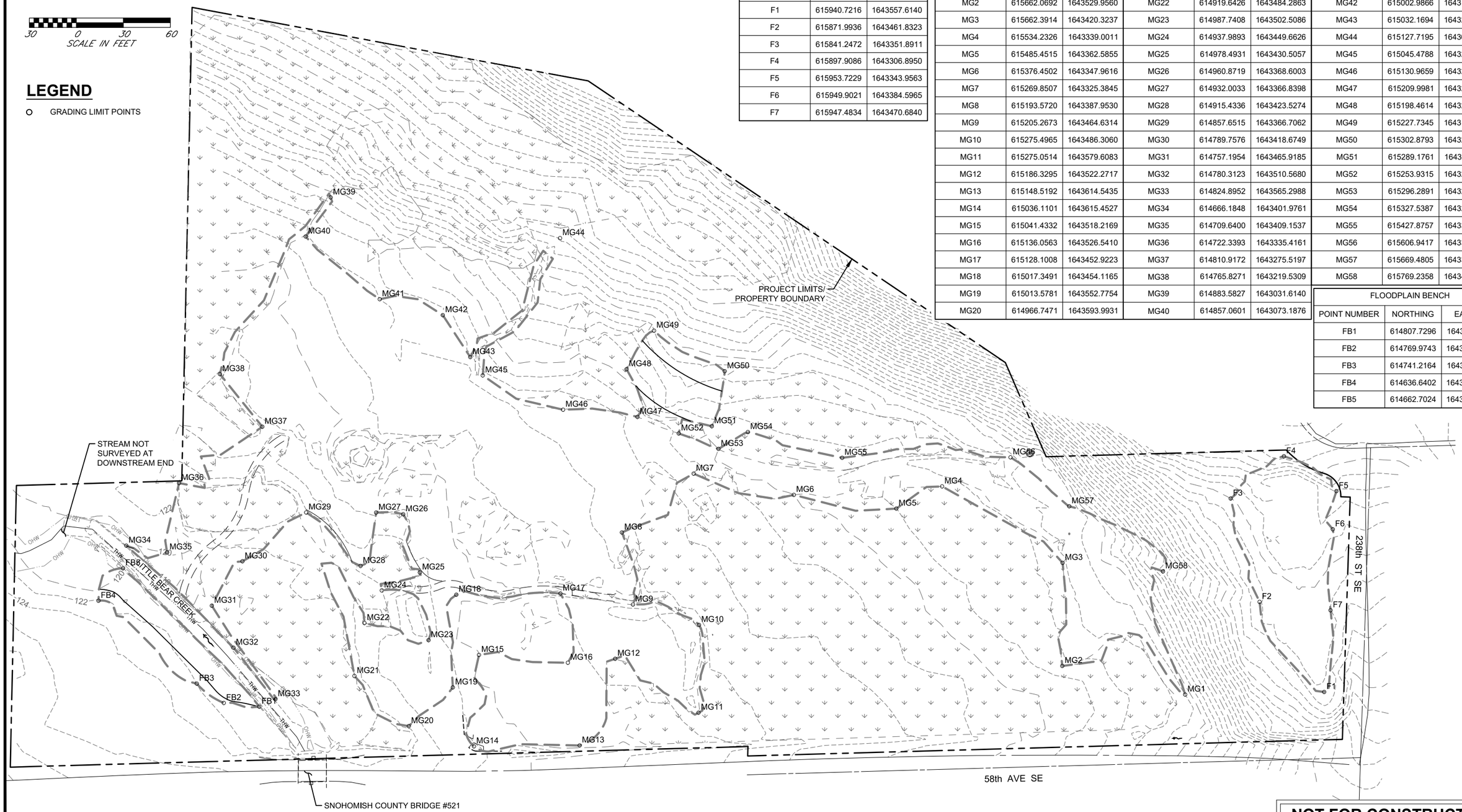
SECTION 34, T27N, R5E, W.M.

N

30 0 30 60
SCALE IN FEET

LEGEND

○ GRADING LIMIT POINTS



FILL PLACEMENT AREA		
POINT NUMBER	NORTHING	EASTING
F1	615940.7216	1643557.6140
F2	615871.9936	1643461.8323
F3	615841.2472	1643351.8911
F4	615897.9086	1643306.8950
F5	615953.7229	1643343.9563
F6	615949.9021	1643384.5965
F7	615947.4834	1643470.6840

MAIN GRADING AREA			MAIN GRADING AREA			MAIN GRADING AREA		
POINT NUMBER	NORTHING	EASTING	POINT NUMBER	NORTHING	EASTING	POINT NUMBER	NORTHING	EASTING
MG1	615792.7966	1643560.3941	MG21	614908.9560	1643540.6668	MG41	614935.8343	1643139.8590
MG2	615662.0692	1643529.9560	MG22	614919.6426	1643484.2863	MG42	615002.9866	1643156.8388
MG3	615662.3914	1643420.3237	MG23	614987.7408	1643502.5086	MG43	615032.1694	1643201.3753
MG4	615534.2326	1643339.0011	MG24	614937.9893	1643449.6626	MG44	615127.7195	1643074.8855
MG5	615485.4515	1643362.5855	MG25	614978.4931	1643430.5057	MG45	615045.4788	1643220.8847
MG6	615376.4502	1643347.9616	MG26	614960.8719	1643368.6003	MG46	615130.9659	1643257.3587
MG7	615269.8507	1643325.3845	MG27	614932.0033	1643366.8398	MG47	615209.9981	1643265.0478
MG8	615193.5720	1643387.9530	MG28	614915.4336	1643423.5274	MG48	615198.4614	1643214.2937
MG9	615205.2673	1643464.6314	MG29	614857.6515	1643366.7062	MG49	615227.7345	1643173.2800
MG10	615275.4965	1643486.3060	MG30	614789.7576	1643418.6749	MG50	615302.8793	1643216.4287
MG11	615275.0514	1643579.6083	MG31	614757.1954	1643465.9185	MG51	615289.1761	1643274.9731
MG12	615186.3295	1643522.2717	MG32	614780.3123	1643510.5680	MG52	615253.9315	1643282.6472
MG13	615148.5192	1643614.5435	MG33	614824.8952	1643565.2988	MG53	615296.2891	1643299.0843
MG14	615036.1101	1643615.4527	MG34	614666.1848	1643401.9761	MG54	615327.5387	1643281.1339
MG15	615041.4332	1643518.2169	MG35	614709.6400	1643409.1537	MG55	615427.8757	1643308.5483
MG16	615136.0563	1643526.5410	MG36	614722.3393	1643335.4161	MG56	615606.9417	1643308.0342
MG17	615128.1008	1643452.9223	MG37	614810.9172	1643275.5197	MG57	615669.4805	1643360.1202
MG18	615017.3491	1643454.1165	MG38	614765.8271	1643219.5309	MG58	615769.2358	1643429.3504
MG19	615013.5781	1643552.7754	MG39	614883.5827	1643031.6140			
MG20	614966.7471	1643593.9931	MG40	614857.0601	1643073.1876			

FLOODPLAIN BENCH		
POINT NUMBER	NORTHING	EASTING
FB1	614807.7296	1643573.2821
FB2	614769.9743	1643569.3240
FB3	614741.2164	1643548.8361
FB4	614636.6402	1643460.6364
FB5	614662.7024	1643426.0802

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DATE	NO.	REVISION	BY
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SURVEY NO.:	FIELD BOOK(S):
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DESIGNED BY: ESB, BDT	DRAWN BY: AMF, RK

PRELIMINARY

90% DESIGN

REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

GRADING LAYOUT

REFERENCE SHEET NO. G06

SHEET 6 OF 37 SHEETS

2/27/2019 5:00:50 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\G06 GRADING AREA.DWG

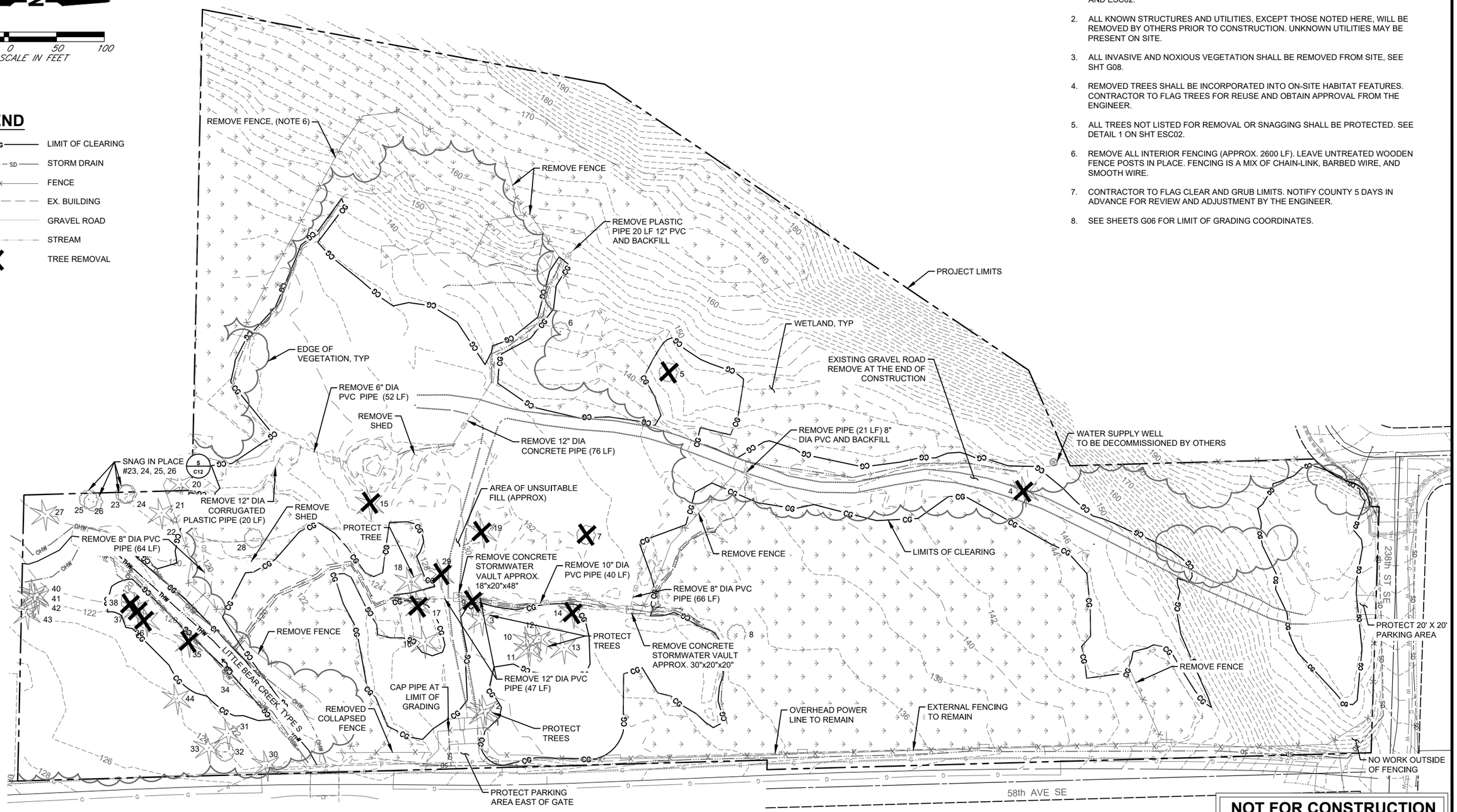
SECTION 34, T27N, R5E, W.M.

N

50 0 50 100
SCALE IN FEET

LEGEND

- LIMIT OF CLEARING
- STORM DRAIN
- FENCE
- EX. BUILDING
- GRAVEL ROAD
- STREAM
- TREE REMOVAL



NOTES

1. INSTALL ALL TESC BMPS PRIOR TO STARTING SITE PREPARATION. SEE SHTS ESC01 AND ESC02.
2. ALL KNOWN STRUCTURES AND UTILITIES, EXCEPT THOSE NOTED HERE, WILL BE REMOVED BY OTHERS PRIOR TO CONSTRUCTION. UNKNOWN UTILITIES MAY BE PRESENT ON SITE.
3. ALL INVASIVE AND NOXIOUS VEGETATION SHALL BE REMOVED FROM SITE, SEE SHT G08.
4. REMOVED TREES SHALL BE INCORPORATED INTO ON-SITE HABITAT FEATURES. CONTRACTOR TO FLAG TREES FOR REUSE AND OBTAIN APPROVAL FROM THE ENGINEER.
5. ALL TREES NOT LISTED FOR REMOVAL OR SNAGGING SHALL BE PROTECTED. SEE DETAIL 1 ON SHT ESC02.
6. REMOVE ALL INTERIOR FENCING (APPROX. 2600 LF). LEAVE UNTREATED WOODEN FENCE POSTS IN PLACE. FENCING IS A MIX OF CHAIN-LINK, BARBED WIRE, AND SMOOTH WIRE.
7. CONTRACTOR TO FLAG CLEAR AND GRUB LIMITS. NOTIFY COUNTY 5 DAYS IN ADVANCE FOR REVIEW AND ADJUSTMENT BY THE ENGINEER.
8. SEE SHEETS G06 FOR LIMIT OF GRADING COORDINATES.

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LITTLE BEAR CREEK ADVANCED MITIGATION SITE

SITE PREPARATION

REFERENCE SHEET NO. G07

SHEET 7 OF 37 SHEETS

2/27/2019 5:01:06 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\G07 SITE PREPARATION.DWG

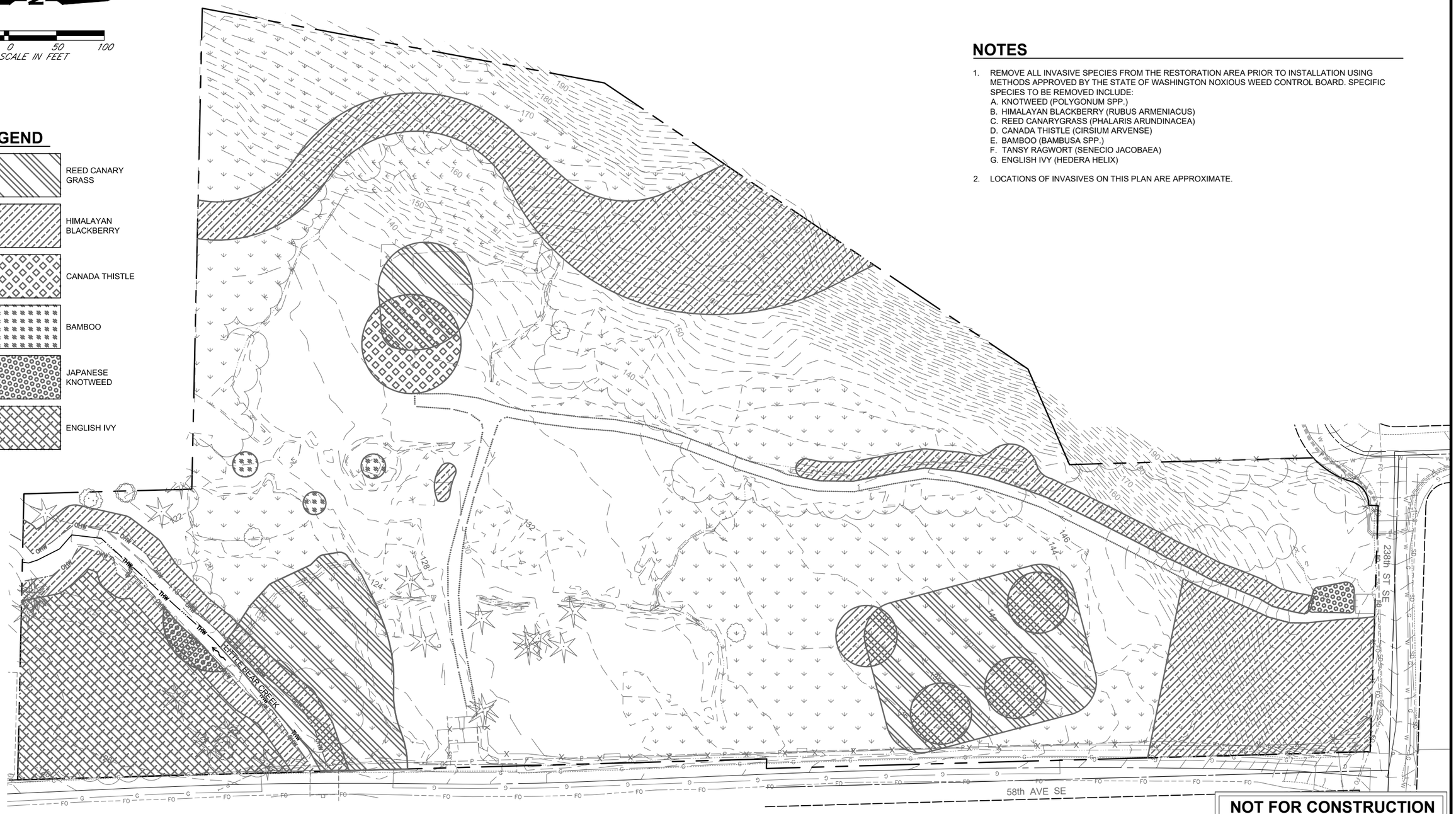
SECTION 34, T27N, R5E, W.M.

N

50 0 50 100
SCALE IN FEET

LEGEND

- REED CANARY GRASS
- HIMALAYAN BLACKBERRY
- CANADA THISTLE
- BAMBOO
- JAPANESE KNOTWEED
- ENGLISH IVY



NOTES

1. REMOVE ALL INVASIVE SPECIES FROM THE RESTORATION AREA PRIOR TO INSTALLATION USING METHODS APPROVED BY THE STATE OF WASHINGTON NOXIOUS WEED CONTROL BOARD. SPECIFIC SPECIES TO BE REMOVED INCLUDE:
   A. KNOTWEED (POLYGONUM SPP.)
   B. HIMALAYAN BLACKBERRY (RUBUS ARMENIACUS)
   C. REED CANARYGRASS (PHALARIS ARUNDINACEA)
   D. CANADA THISTLE (CIRSIUM ARVENSE)
   E. BAMBOO (BAMBUSA SPP.)
   F. TANSY RAGWORT (SENECIO JACOBAEA)
   G. ENGLISH IVY (HEDERA HELIX)
2. LOCATIONS OF INVASIVES ON THIS PLAN ARE APPROXIMATE.

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STATE OF WASHINGTON · REGISTERED PROFESSIONAL ENGINEER · EXP. 2/19

REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

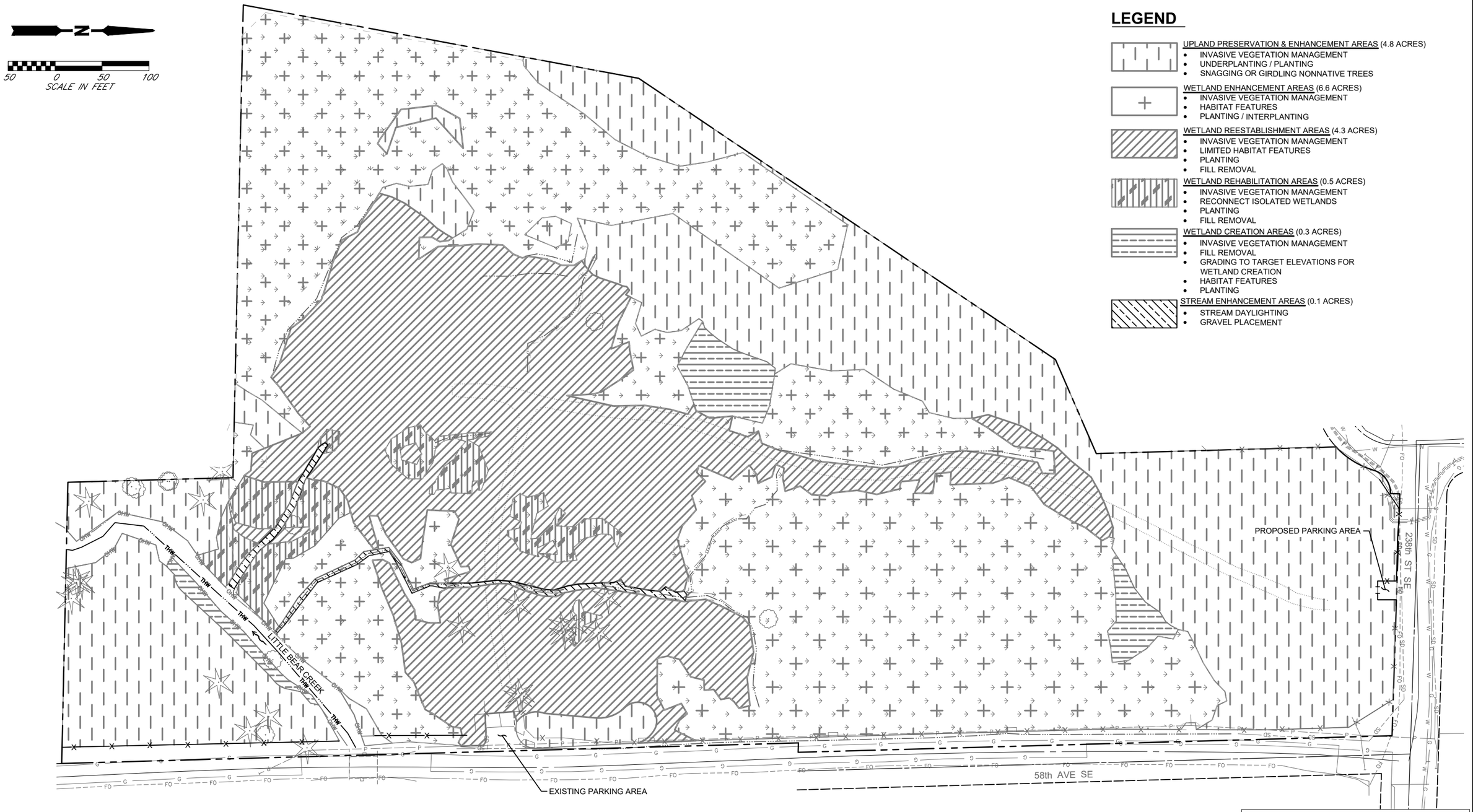
INVASIVE VEGETATION REMOVAL

REFERENCE SHEET NO. G08

SHEET 8 OF 37 SHEETS

2/27/2019 5:01:17 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\G08 INVASIVE VEGETATION REMOVAL.DWG

SECTION 34, T27N, R5E, W.M.



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FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

MITIGATION GOALS

REFERENCE SHEET NO. G09

SHEET 9 OF 37 SHEETS

2/27/2019 5:01:31 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\G09 SITE OVERVIEW.DWG

SECTION 34, T27N, R5E, W.M.

STREAM DIVERSION NOTES

1. ALL WORK BELOW THE OHW ELEVATION OF LITTLE BEAR CREEK AND STREAMS 1 AND 4 SHALL BE PERFORMED DURING THE IN-WATER WORK PERIOD SPECIFIED BY PERMIT.
2. THE LAYOUT DEPICTS A POTENTIAL APPROACH FOR TEMPORARY STREAM DIVERSION. FINAL TEMPORARY STREAM DIVERSION PLAN TO BE DEVELOPED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER/OWNER'S REPRESENTATIVE FOR CONCURRENCE.

GENERAL NOTES

1. SEE SHT G03 FOR GENERAL EROSION CONTROL NOTES.
2. CLEARING LIMITS SHALL BE AS SHOWN ON SHT G06.
3. STREAMS 1 AND 4 ARE NON-FISH-BEARING PERENNIAL STREAMS AND WILL REQUIRE GRAVITY FLOW DIVERSION DURING CONSTRUCTION. ANTICIPATED FLOWS ARE < 1 CFS.
4. HIGH VISIBILITY FENCING AND OTHER EROSION CONTROL MEASURES MAY BE ADJUSTED TO ACCOMMODATE CONSTRUCTION.

TYPICAL TESC CONSTRUCTION SEQUENCE

1. PRE-CONSTRUCTION CONFERENCE. CONTRACTOR UPDATES SWPPP, TESC PLAN AND/OR SPCC PLAN, AS NEEDED.
2. SWPPP, TESC PLAN AND SPCC PLAN APPROVED BY ENGINEER.
3. FLAG OR FENCE CLEARING LIMITS.
4. INSTALL PERIMETER PROTECTION (SILT OR HIGH VISIBILITY FENCE, ETC.).
5. INSTALL OR PROVIDE MEASURES TO PREVENT TRANSPORT OF SEDIMENT (MUD) ONTO ROADWAYS.
6. STABILIZE ALL DISTURBED AREAS THAT WILL REMAIN UNWORKED FOR MORE THAN 7 DAYS (APR 1 THROUGH SEP 30) OR NO MORE THAN 2 DAYS (OCT 1 THROUGH MAR 31).

ESC NOTES

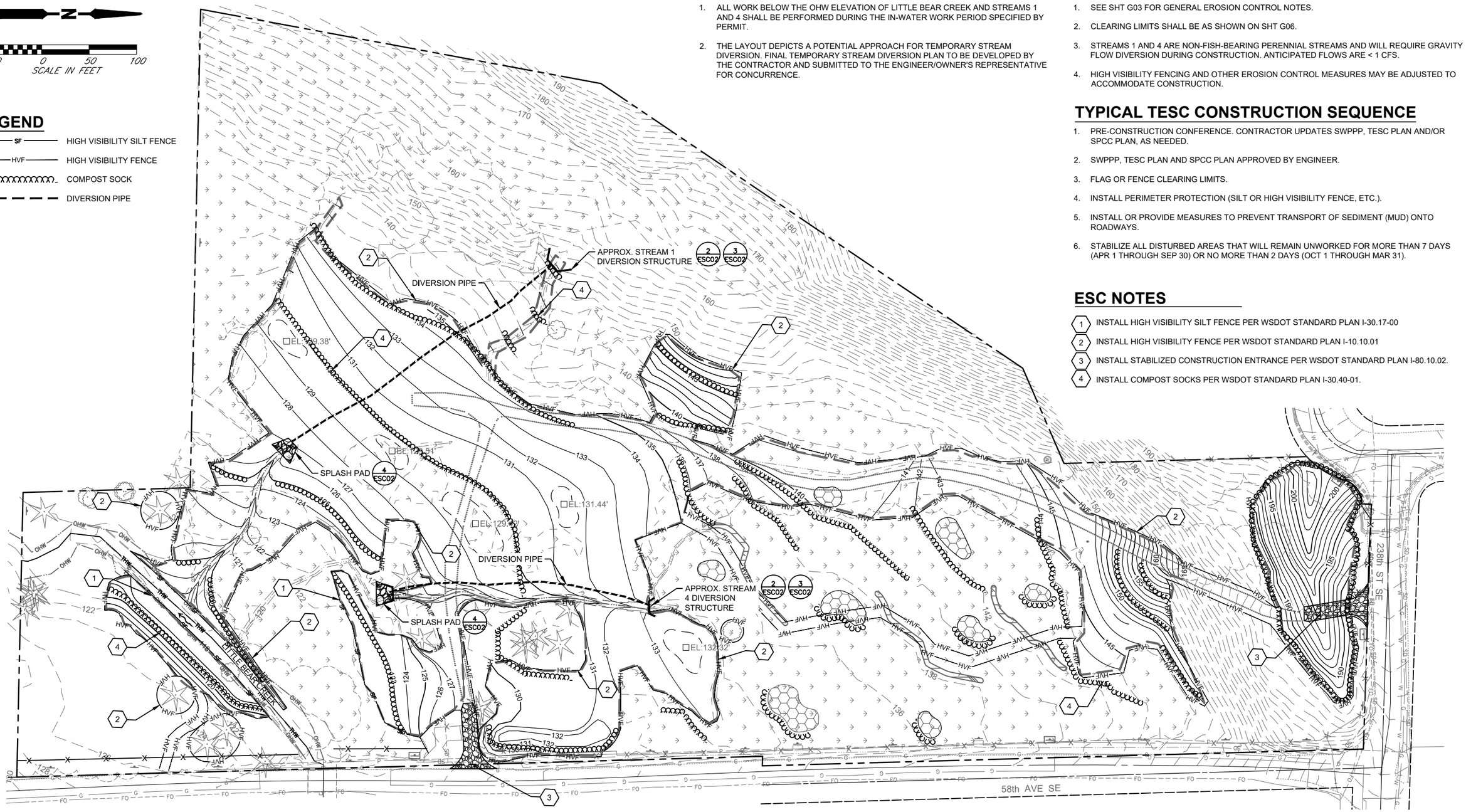
1. INSTALL HIGH VISIBILITY SILT FENCE PER WSDOT STANDARD PLAN I-30.17-00
2. INSTALL HIGH VISIBILITY FENCE PER WSDOT STANDARD PLAN I-10.10.01
3. INSTALL STABILIZED CONSTRUCTION ENTRANCE PER WSDOT STANDARD PLAN I-80.10.02.
4. INSTALL COMPOST SOCKS PER WSDOT STANDARD PLAN I-30.40-01.

N

50 0 50 100
SCALE IN FEET

LEGEND

- SF — HIGH VISIBILITY SILT FENCE
- HVF — HIGH VISIBILITY FENCE
- COMPOST SOCK
- DIVERSION PIPE



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SNOHOMISH COUNTY ENGINEER

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SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

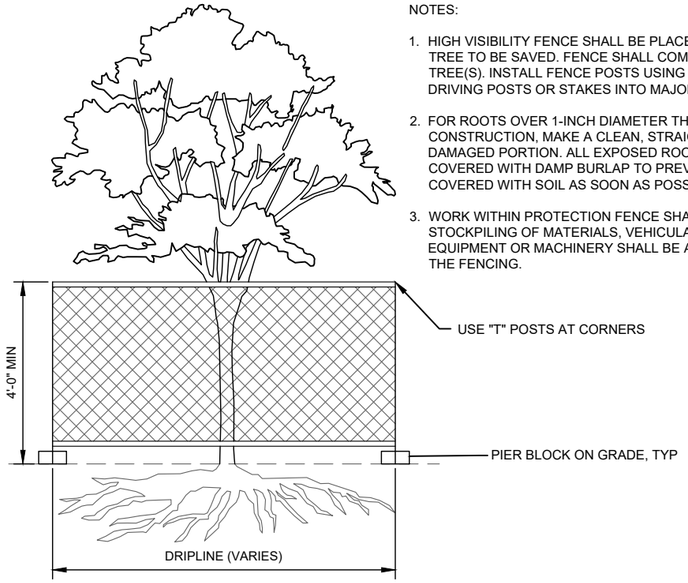
EROSION CONTROL PLAN

REFERENCE SHEET NO. ESC01

SHEET 10 OF 37 SHEETS

2/27/2019 5:01:35 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\ESC01 ESC PLAN.DWG

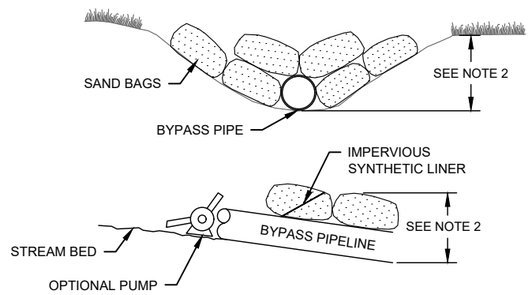
SECTION 34, T27N, R5E, W.M.



NOTES:

1. HIGH VISIBILITY FENCE SHALL BE PLACED AT THE DRIPLINE OF THE TREE TO BE SAVED. FENCE SHALL COMPLETELY ENCIRCLE THE TREE(S). INSTALL FENCE POSTS USING PIER BLOCKS ONLY. AVOID DRIVING POSTS OR STAKES INTO MAJOR ROOTS.
2. FOR ROOTS OVER 1-INCH DIAMETER THAT ARE DAMAGED DURING CONSTRUCTION, MAKE A CLEAN, STRAIGHT CUT TO REMOVE THE DAMAGED PORTION. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING AND SHALL BE COVERED WITH SOIL AS SOON AS POSSIBLE.
3. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING.

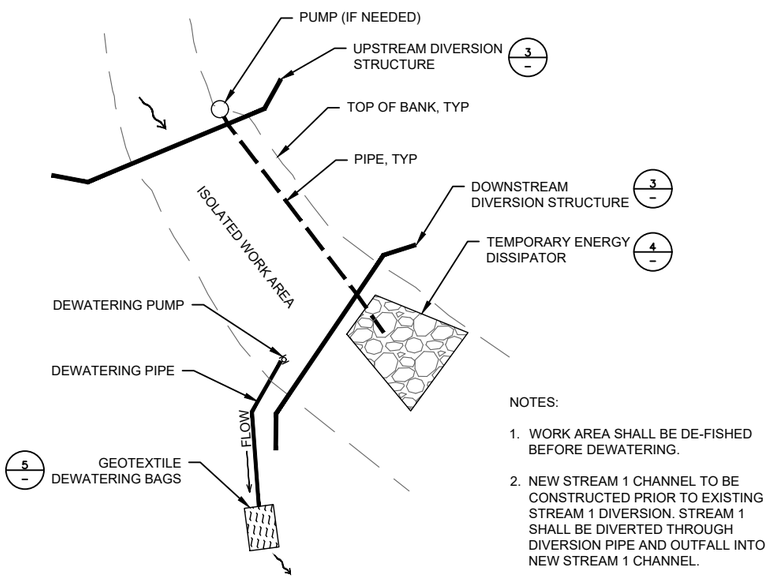
1 / - TREE PROTECTION NTS
DETAIL



NOTES:

1. THE CONTRACTOR SHALL NOT WORK DIRECTLY WITHIN STREAM 1 OR STREAM 4 WITHOUT A TEMPORARY STREAM DIVERSION PLAN, PER SPECIFICATIONS.
2. THE HEIGHT OF THE DIVERSION STRUCTURES SHALL BE HIGH ENOUGH TO PREVENT OVERTOPPING AND ALLOW ENOUGH FREEBOARD FOR INCLEMENT WATER CONDITIONS. STRUCTURE HEIGHTS AND MATERIALS SHALL BE INCLUDED IN THE CONTRACTOR'S TEMPORARY STREAM DIVERSION PLAN.
3. SEE SPECIFICATIONS FOR THE CONSTRUCTION PERIOD FLOW RATE AND DIVERSION REQUIREMENTS.

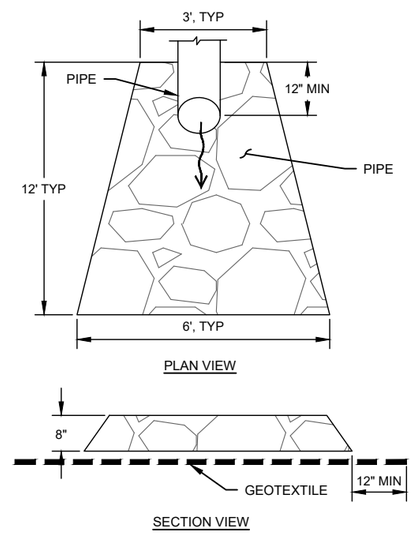
3 / - TEMPORARY STREAM DIVERSION STRUCTURE NTS
DETAIL



NOTES:

1. WORK AREA SHALL BE DE-FISHED BEFORE DEWATERING.
2. NEW STREAM 1 CHANNEL TO BE CONSTRUCTED PRIOR TO EXISTING STREAM 1 DIVERSION. STREAM 1 SHALL BE DIVERTED THROUGH DIVERSION PIPE AND OUTFALL INTO NEW STREAM 1 CHANNEL.

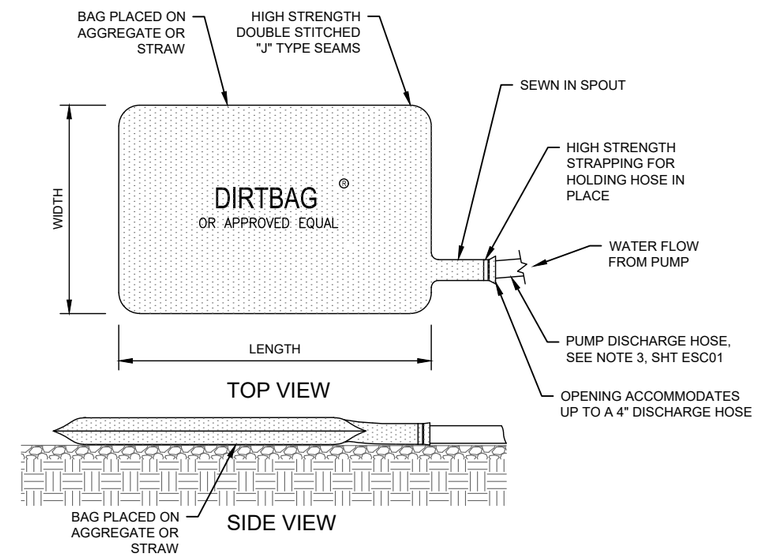
2 / - TYPICAL WORK AREA DEWATERING NTS
DETAIL



NOTES:

1. GEOTEXTILE SHALL EXTEND 12" BEYOND THE EDGES OF THE TEMPORARY ENERGY DISSIPATOR TO PREVENT QUARRY SPALLS FROM MIXING WITH THE STREAMBED MATERIALS.
2. GEOTEXTILE AND QUARRY SPALLS SHALL BE COMPLETELY REMOVED AFTER USE.

4 / - TEMPORARY ENERGY DISSIPATOR NTS
DETAIL



NOTES:

1. THE GEOTEXTILE BAG SHALL BE ATTACHED TO THE EFFLUENT PIPE FROM THE DEWATERING PUMP. THE PLACEMENT OF THE GEOTEXTILE BAG SHALL BE INCLUDED IN THE CONTRACTOR'S TEMPORARY STREAM DIVERSION PLAN.
2. AVOID PLACEMENT OF THE GEOTEXTILE BAG ABOVE STEEP SLOPES OR WHERE SATURATED SOIL CONDITIONS MAY CAUSE SOIL INSTABILITY.
3. INSTALL THE GEOTEXTILE BAG ON A MILD SLOPE WITH THE INLET ORIENTED UP SLOPE SO INCOMING WATER FLOWS DOWNHILL THROUGH THE BAG. DISPOSE OF CAPTURED SEDIMENT OFFSITE.
4. THE GEOTEXTILE BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR PASS WATER AT A REASONABLE RATE. DISPOSE OF THE GEOTEXTILE BAG OFF SITE.

5 / - GEOTEXTILE DEWATERING BAG NTS
DETAIL

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SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

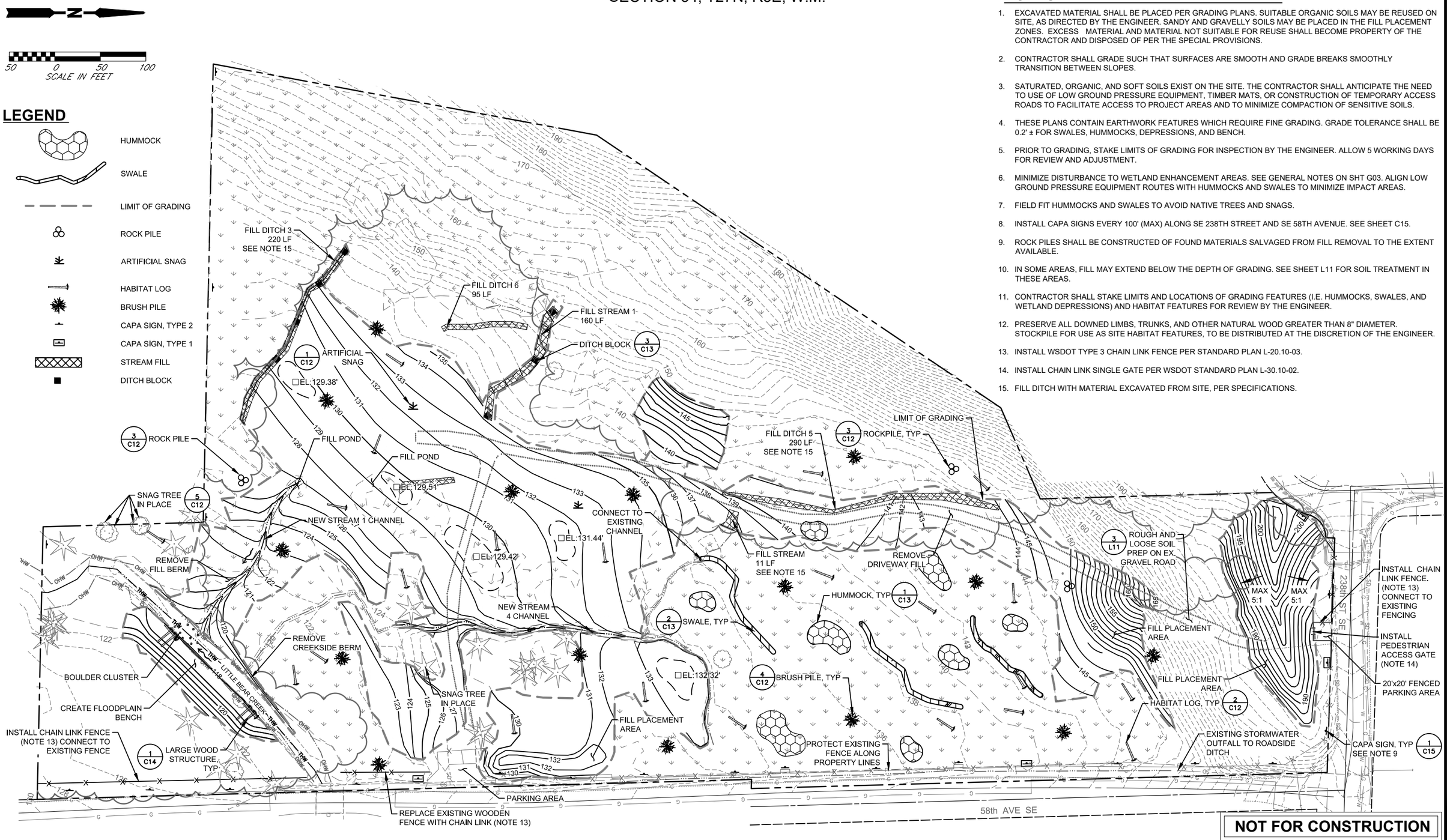
EROSION CONTROL DETAILS

REFERENCE SHEET NO. ESC02

SHEET 11 OF 37 SHEETS

2/27/2019 5:01:44 PM - HANNAH SNOW - \\ESA\ES\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\ESC02 ESC DETAILS.DWG

SECTION 34, T27N, R5E, W.M.



NOTES

1. EXCAVATED MATERIAL SHALL BE PLACED PER GRADING PLANS. SUITABLE ORGANIC SOILS MAY BE REUSED ON SITE, AS DIRECTED BY THE ENGINEER. SANDY AND GRAVELLY SOILS MAY BE PLACED IN THE FILL PLACEMENT ZONES. EXCESS MATERIAL AND MATERIAL NOT SUITABLE FOR REUSE SHALL BECOME PROPERTY OF THE CONTRACTOR AND DISPOSED OF PER THE SPECIAL PROVISIONS.
2. CONTRACTOR SHALL GRADE SUCH THAT SURFACES ARE SMOOTH AND GRADE BREAKS SMOOTHLY TRANSITION BETWEEN SLOPES.
3. SATURATED, ORGANIC, AND SOFT SOILS EXIST ON THE SITE. THE CONTRACTOR SHALL ANTICIPATE THE NEED TO USE OF LOW GROUND PRESSURE EQUIPMENT, TIMBER MATS, OR CONSTRUCTION OF TEMPORARY ACCESS ROADS TO FACILITATE ACCESS TO PROJECT AREAS AND TO MINIMIZE COMPACTION OF SENSITIVE SOILS.
4. THESE PLANS CONTAIN EARTHWORK FEATURES WHICH REQUIRE FINE GRADING. GRADE TOLERANCE SHALL BE 0.2' ± FOR SWALES, HUMMOCKS, DEPRESSIONS, AND BENCH.
5. PRIOR TO GRADING, STAKE LIMITS OF GRADING FOR INSPECTION BY THE ENGINEER. ALLOW 5 WORKING DAYS FOR REVIEW AND ADJUSTMENT.
6. MINIMIZE DISTURBANCE TO WETLAND ENHANCEMENT AREAS. SEE GENERAL NOTES ON SHT G03. ALIGN LOW GROUND PRESSURE EQUIPMENT ROUTES WITH HUMMOCKS AND SWALES TO MINIMIZE IMPACT AREAS.
7. FIELD FIT HUMMOCKS AND SWALES TO AVOID NATIVE TREES AND SNAGS.
8. INSTALL CAPA SIGNS EVERY 100' (MAX) ALONG SE 238TH STREET AND SE 58TH AVENUE. SEE SHEET C15.
9. ROCK PILES SHALL BE CONSTRUCTED OF FOUND MATERIALS SALVAGED FROM FILL REMOVAL TO THE EXTENT AVAILABLE.
10. IN SOME AREAS, FILL MAY EXTEND BELOW THE DEPTH OF GRADING. SEE SHEET L11 FOR SOIL TREATMENT IN THESE AREAS.
11. CONTRACTOR SHALL STAKE LIMITS AND LOCATIONS OF GRADING FEATURES (I.E. HUMMOCKS, SWALES, AND WETLAND DEPRESSIONS) AND HABITAT FEATURES FOR REVIEW BY THE ENGINEER.
12. PRESERVE ALL DOWNED LIMBS, TRUNKS, AND OTHER NATURAL WOOD GREATER THAN 8" DIAMETER. STOCKPILE FOR USE AS SITE HABITAT FEATURES, TO BE DISTRIBUTED AT THE DISCRETION OF THE ENGINEER.
13. INSTALL WSDOT TYPE 3 CHAIN LINK FENCE PER STANDARD PLAN L-20.10-03.
14. INSTALL CHAIN LINK SINGLE GATE PER WSDOT STANDARD PLAN L-30.10-02.
15. FILL DITCH WITH MATERIAL EXCAVATED FROM SITE, PER SPECIFICATIONS.

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SNOHOMISH COUNTY ENGINEER

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FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

GRADING PLAN OVERVIEW

REFERENCE SHEET NO. C01

SHEET 12 OF 37 SHEETS

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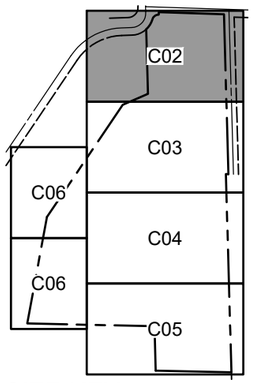
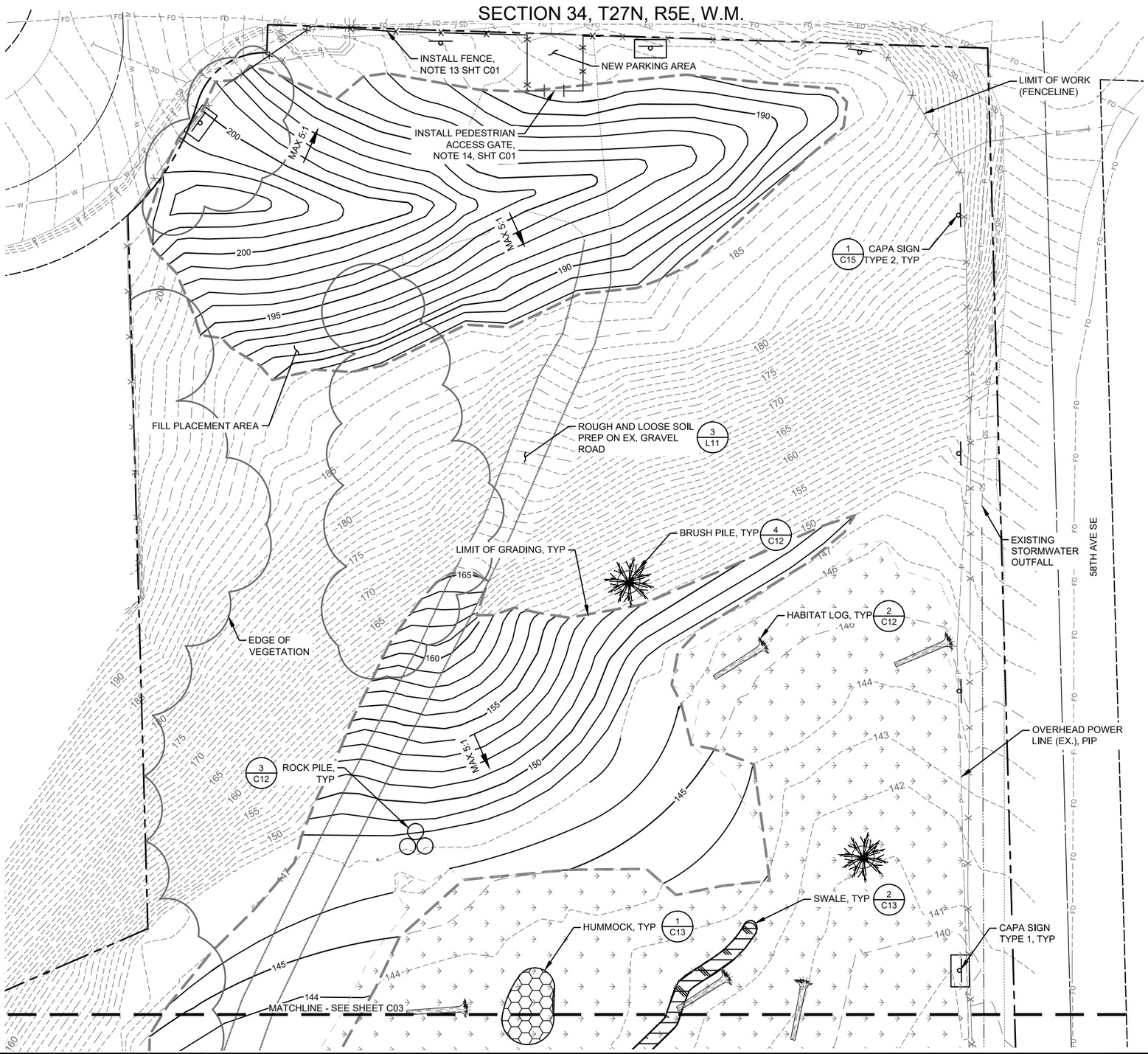


SITE KEY

NOTES

1. SEE SHEETS G02 AND C01 FOR LEGEND.



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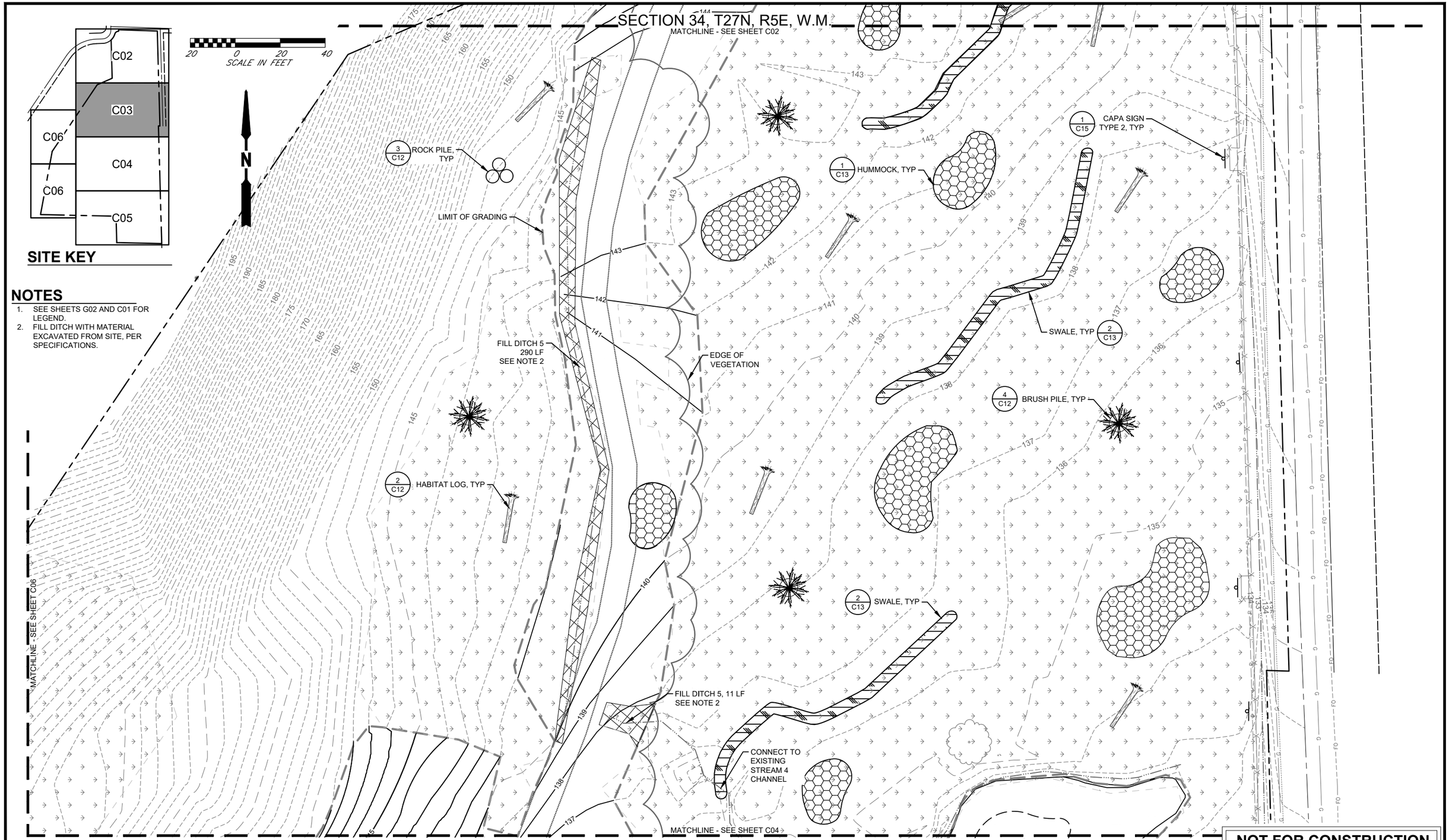
LITTLE BEAR CREEK ADVANCED MITIGATION SITE

GRADING PLAN, 1 OF 5

REFERENCE SHEET NO. C02

SHEET 13 OF 37 SHEETS

2/27/2019 4:39:29 PM - HANNAH SNOW - \\ES\AIES\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\C02 GRADING PLAN, 1 OF 5.DWG



SITE KEY

NOTES

1. SEE SHEETS G02 AND C01 FOR LEGEND.
2. FILL DITCH WITH MATERIAL EXCAVATED FROM SITE, PER SPECIFICATIONS.

NOT FOR CONSTRUCTION

DATE	NO.	REVISION	BY
10/12/18			

Know what's below. Call 811 before you dig.

UPI NO.:	FED. AID PROJ. NO.:
SURVEY NO.:	FIELD BOOK(S):
HORZ. DATUM: LOCAL	VERT. DATUM: NAVD 88
DESIGNED BY: ESB, BDT	DRAWN BY: AMF, RK

PRELIMINARY

90% DESIGN

REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

GRADING PLAN, 2 OF 5

REFERENCE SHEET NO. C03

SHEET 14 OF 37 SHEETS

2/27/2019 4:39:59 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\C03 GRADING PLAN, 2 OF 5.DWG

SECTION 34, T27N, R5E, W.M.

MATCHLINE - SEE SHEET C03

MATCHLINE - SEE SHEET C06

MATCHLINE - SEE SHEET C05

EDGE OF VEGETATION

BRUSH PILE, TYP (4/C12)

HABITAT LOG, TYP (2/C12)

CAPA SIGN TYPE 2, TYP (1/C15)

DITCH BLOCK, TYP (3/C13)

FILL DITCH 6, 95 LF

FILL EX STREAM 1 CHANNEL, 150 LF

LIMITS OF GRADING

FILL EX STREAM 1 CHANNEL, 60 LF

FILL ARTIFICIAL POND

NEW STREAM 4 CHANNEL (2/C14, 3/C14)

PROTECT STREAM 4 THROUGH WETLAND C

TREE ISLANDS

RETAIN EXISTING PARKING AREA

CONNECT TO EXISTING FENCE

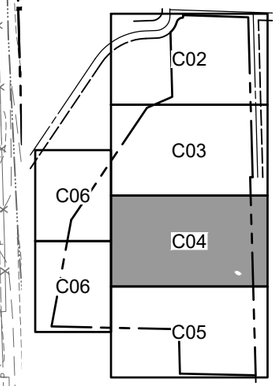
CAPA SIGN TYPE 1, TYP (1/C15)

EL:132.32'

EL:131.44'

EL:129.42'

EL:129.51'



SITE KEY

20 0 20 40
SCALE IN FEET

N

NOTES

1. SEE SHEETS G02 AND C01 FOR NOTES AND LEGEND.

NOT FOR CONSTRUCTION

DATE	NO.	REVISION	BY
10/12/18			

811 Know what's below. Call 811 before you dig.

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SURVEY NO.:	FIELD BOOK(S):
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DESIGNED BY: ESB, BDT	DRAWN BY: AMF, RK

PRELIMINARY

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SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

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LITTLE BEAR CREEK ADVANCED MITIGATION SITE

GRADING PLAN, 3 OF 5

REFERENCE SHEET NO. C04

SHEET 15 OF 37 SHEETS

2/27/2019 4:40:32 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\C04 GRADING PLAN, 3 OF 5.DWG

SECTION 34, T27N, R5E, W.M.

MATCHLINE - SEE SHEET C04

MATCHLINE - SEE SHEET C06

DITCH BLOCK, TYP (3/C13)

EL:129.38'

EDGE OF VEGETATION

FILL DITCH 3
290 LF
SEE NOTE 3

ROCK PILE, TYP (3/C12)

FILL POND

NEW STREAM 1 CHANNEL (1/C14, 3/C14)

LIMITS OF GRADING

REMOVE FILL

STREAM 1 OUTLET

STREAM 4

REMOVE CREEKSIDE BERM

BRUSH PILE, TYP (4/C12)

EDGE OF VEGETATION

HABITAT LOG, TYP (2/C12)

LITTLE BEAR CREEK

LARGE WOOD STRUCTURE, TYP (1/C14)

BOULDER CLUSTER, TYP (2/C14)

FLOODPLAIN BENCH

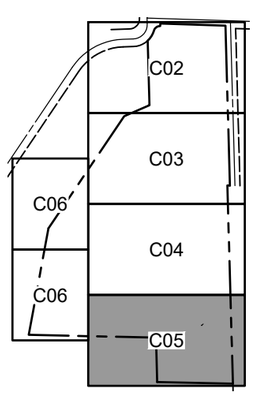
STREAM CHANNEL NOT SURVEYED AT DOWNSTREAM END

ORDINARY HIGH WATER

CAPA SIGN TYPE 2, TYP (1/C15)

NOTES

1. LIMIT DISTURBANCE TO WETLAND AREAS.
2. SEE SHEETS G02 AND C01 FOR LEGEND.
3. FILL DITCH WITH MATERIAL EXCAVATED FROM SITE, PER SPECIFICATIONS.



SITE KEY

20 0 20 40
SCALE IN FEET

N

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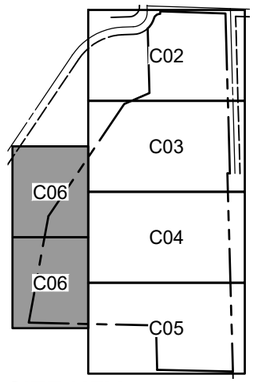
LITTLE BEAR CREEK ADVANCED MITIGATION SITE

GRADING PLAN, 4 OF 5

REFERENCE SHEET NO. C05

SHEET 16 OF 37 SHEETS

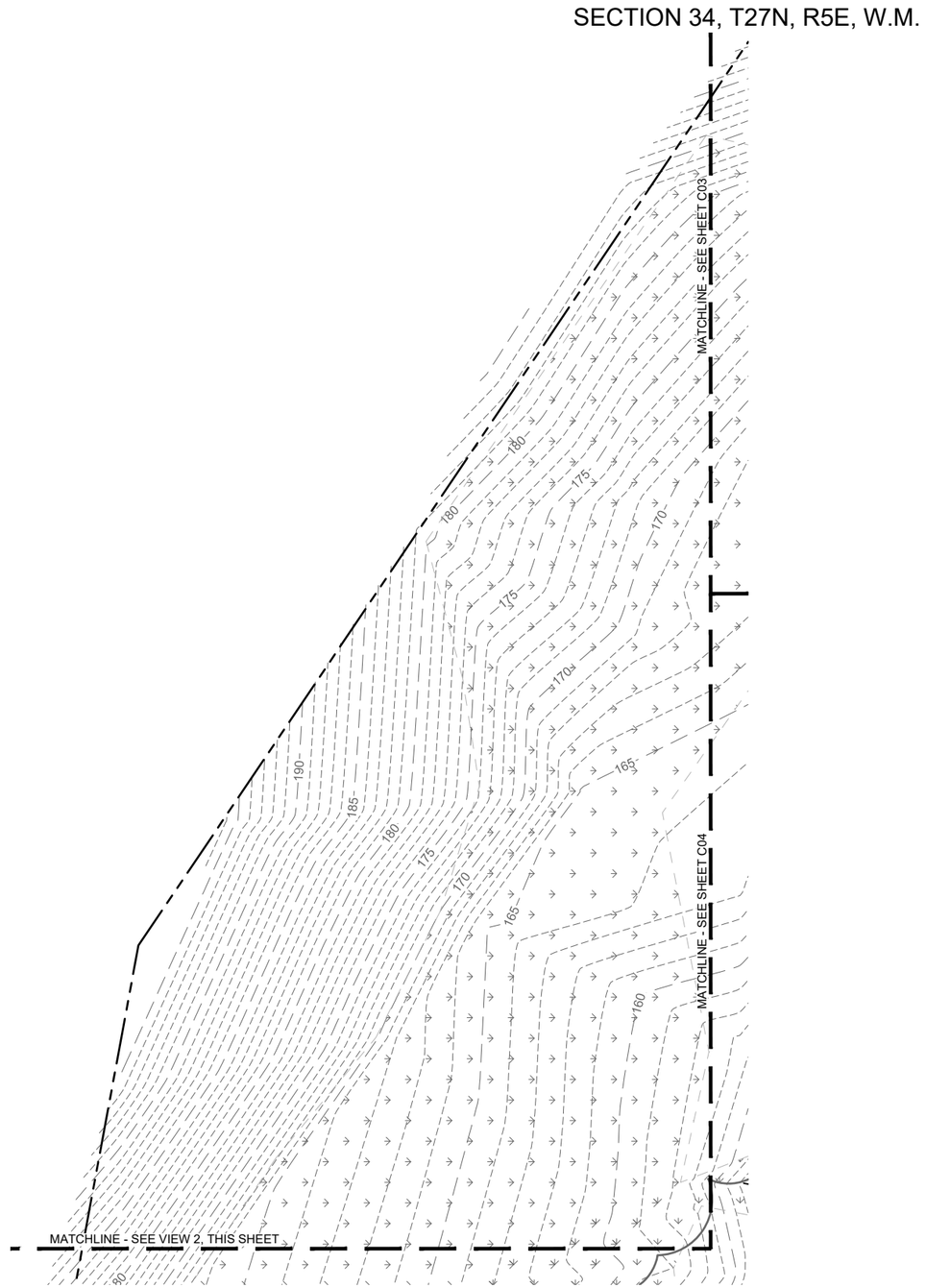
2/27/2019 4:41:06 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\C05 GRADING PLAN, 4 OF 5.DWG



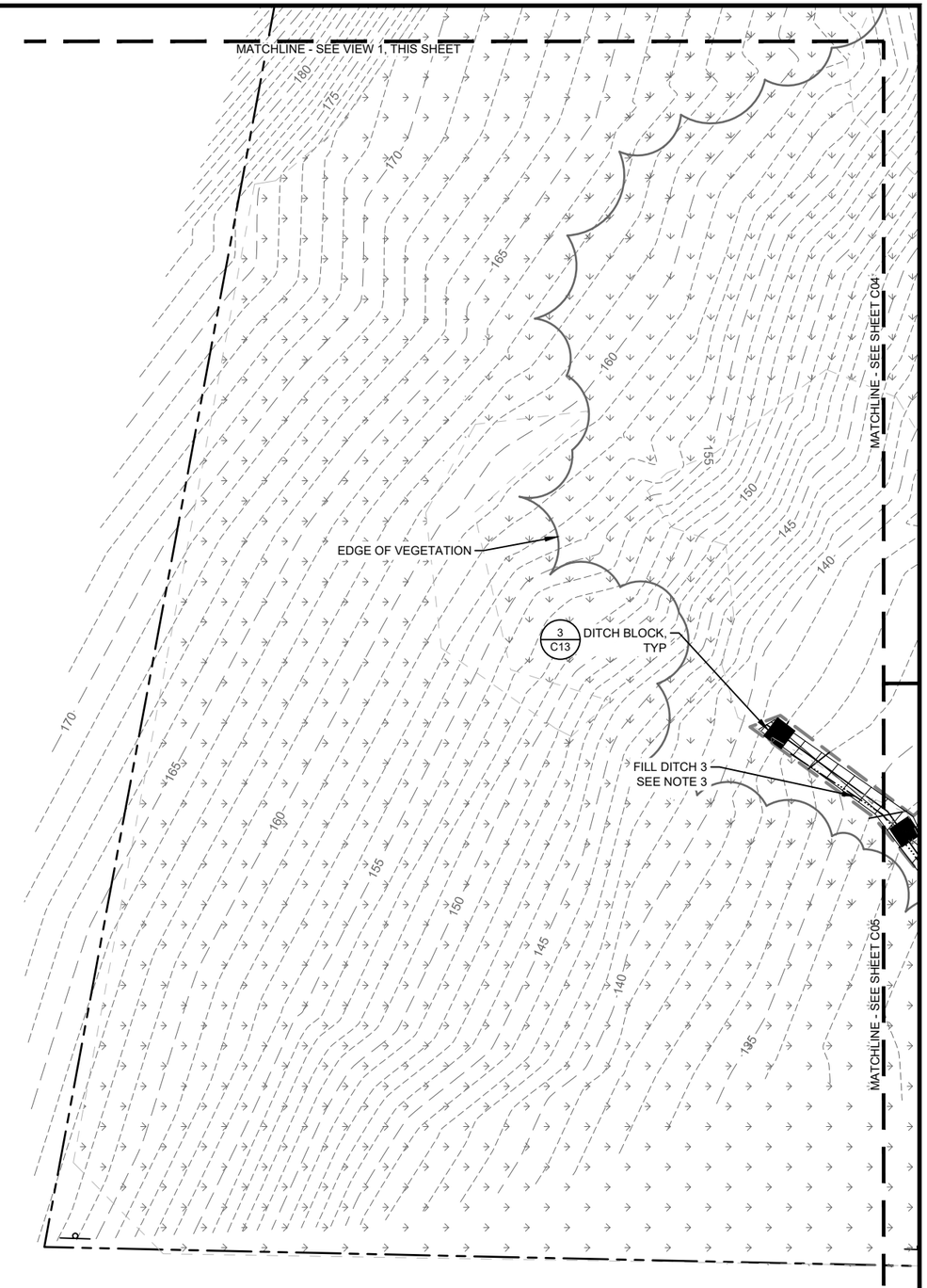
SITE KEY

NOTES

1. SEE SHEETS G02 AND C01 FOR LEGEND.
2. UNDELINEATED WETLANDS MAY EXIST IN THESE AREAS. MINIMIZE DISTURBANCE TO WETLANDS.
3. FILL DITCH WITH MATERIAL EXCAVATED FROM SITE, PER SPECIFICATIONS.



VIEW 1



VIEW 2

NOT FOR CONSTRUCTION

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SURVEY NO.:	FIELD BOOK(S):
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DESIGNED BY: ESB, BDT	DRAWN BY: AMF, RK

PRELIMINARY

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SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

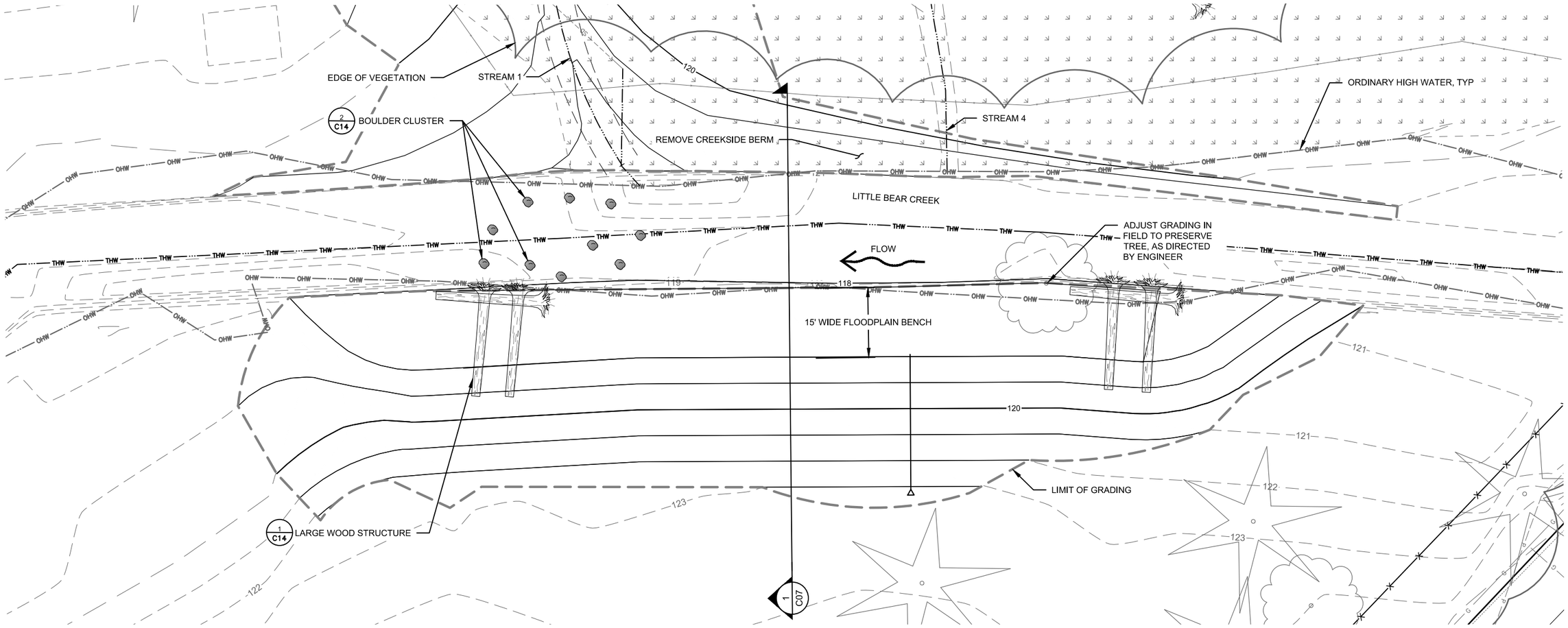
GRADING PLAN, 5 OF 5

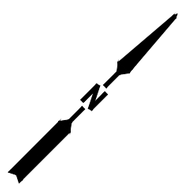
REFERENCE SHEET NO. **C06**

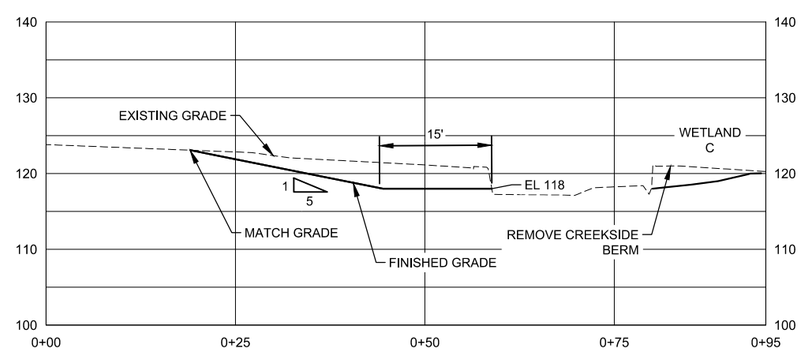
SHEET **17** OF **37** SHEETS

2/27/2019 4:41:40 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\C06 GRADING PLAN, 5 OF 5.DWG

SECTION 34, T27N, R5E, W.M.







1 C07 FLOOD PLAIN BENCH SECTION 1"=10'

NOTES

1. PRESERVE TREES NOT FLAGGED FOR REMOVAL OR SNAGGING AS TREE ISLANDS.
2. SEE SHEETS G02 AND C01 FOR LEGEND.

NOT FOR CONSTRUCTION

DATE	NO.	REVISION	BY
10/12/18			

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LITTLE BEAR CREEK ADVANCED MITIGATION SITE

LITTLE BEAR CREEK DESIGN

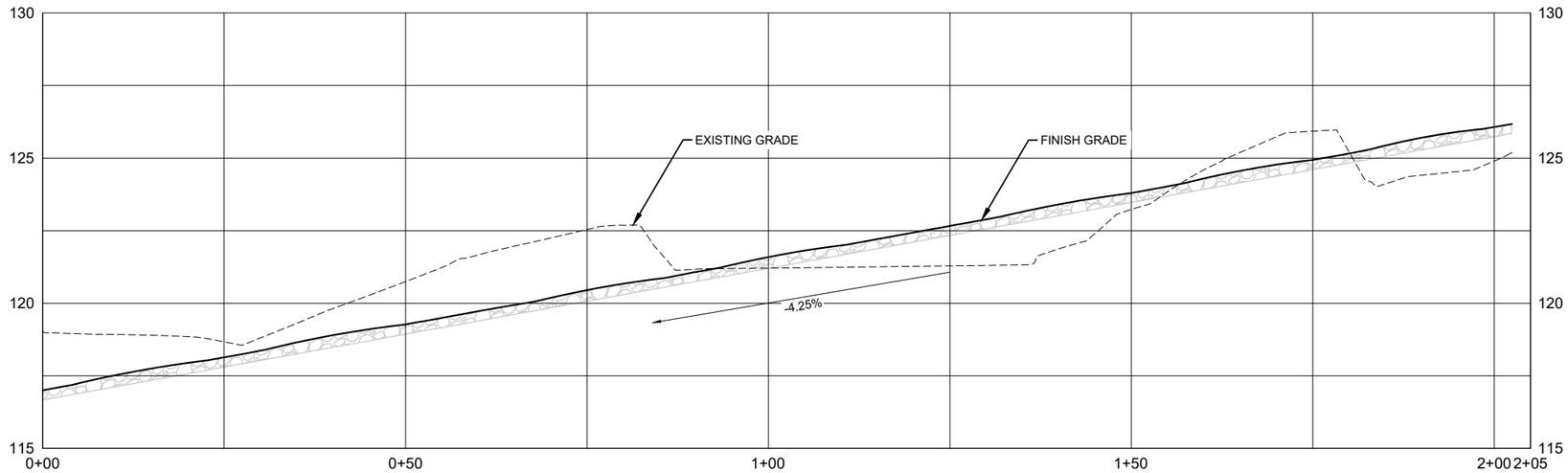
REFERENCE SHEET NO. C07

SHEET 18 OF 37 SHEETS

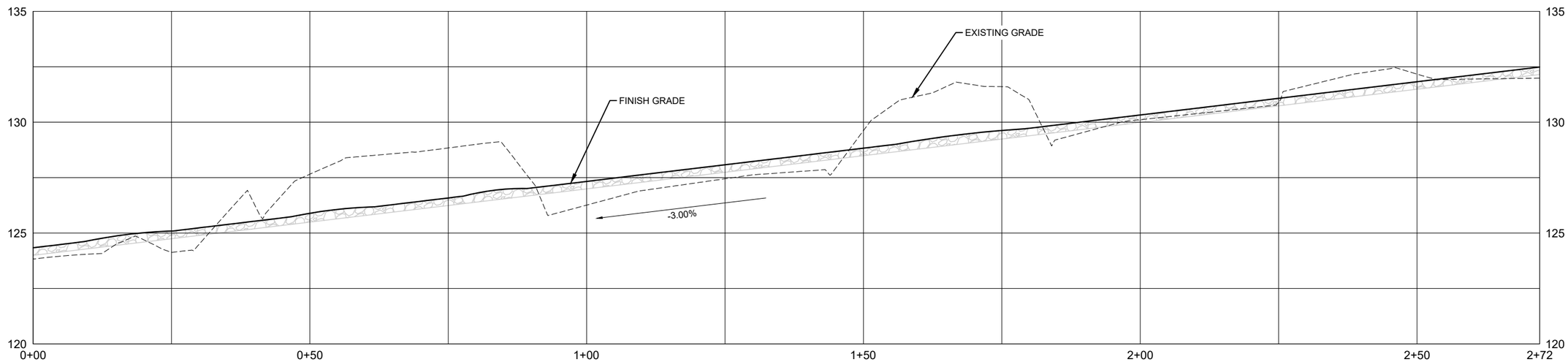
2/27/2019 4:42:02 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\ID140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\C07 LITTLE BEAR CREEK DESIGN.DWG

NOTES

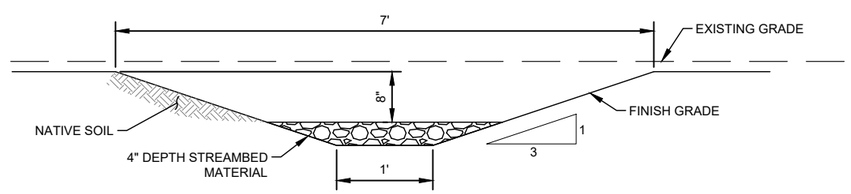
1. STREAMBED MATERIAL SHALL BE 30% STREAMBED SEDIMENT AND 70% 4" STREAMBED COBBLE, BY VOLUME.
2. STREAMBED MATERIAL SHALL BE INSTALLED PER THE SPECIFICATIONS.



1 - STREAM 2 VERT. EXAGG:4X, 1"=10'
PROFILE



2 - STREAM 4 VERT. EXAGG:4X, 1"=10'
PROFILE



3 - STREAM NTS
SECTION

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DESIGNED BY: ESB, BDT	DRAWN BY: AMF, RK

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SNOHOMISH COUNTY ENGINEER
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LITTLE BEAR CREEK ADVANCED MITIGATION SITE

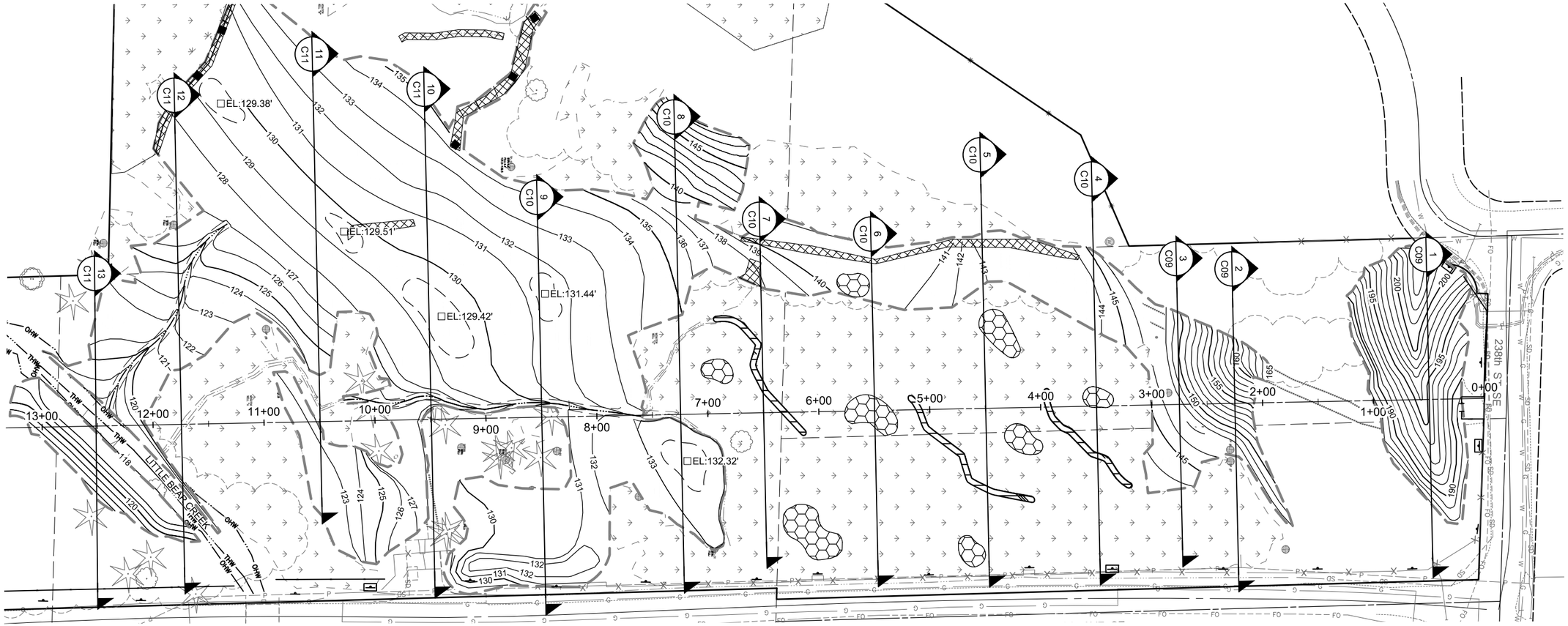
STREAM PROFILES

REFERENCE SHEET NO. C08

SHEET 19 OF 37 SHEETS

2/27/2019 4:42:18 PM - EBARTOLOMEO - \\ESA\ESA\PROJECTS\SEA\14XXXX\ID140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\C08 STREAM PROFILES AND DETAILS.DWG

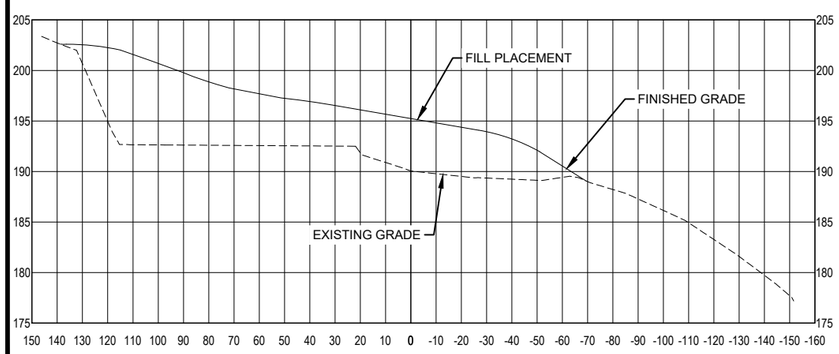
SECTION 34, T27N, R5E, W.M.



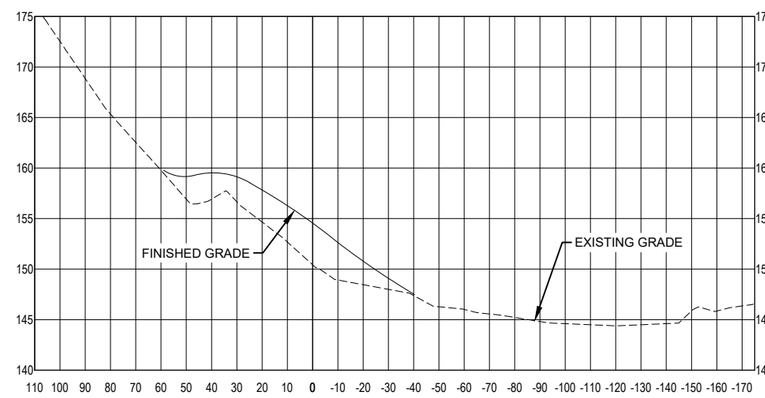
N

SCALE IN FEET 50 0 50 100

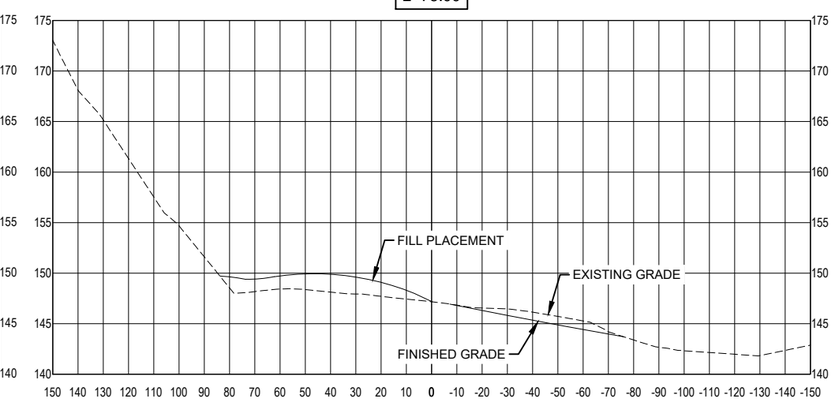
2+75.00



1 - 0+50 SECTION 1"=30'



2 - 2+25 SECTION 1"=30'



3 - 2+75 SECTION 1"=30'

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DESIGNED BY: ESB	DRAWN BY: AMF

PRELIMINARY 90% DESIGN

REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

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LITTLE BEAR CREEK ADVANCED MITIGATION SITE

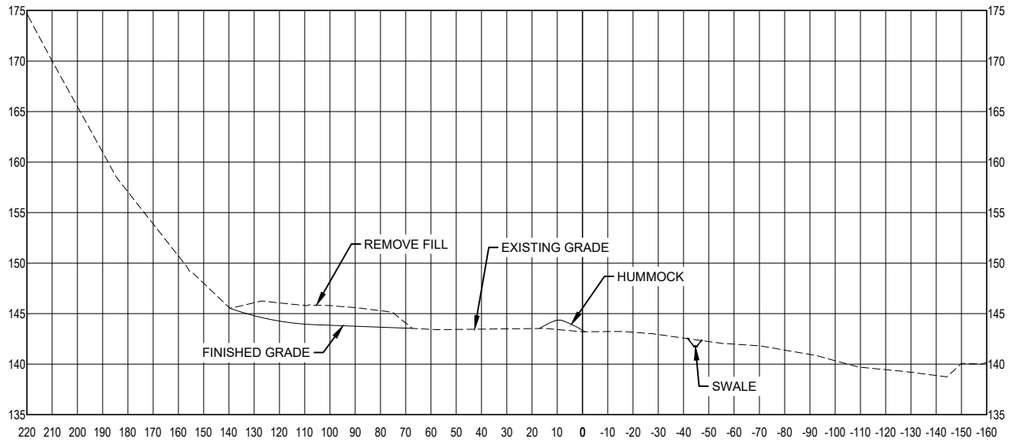
SITE SECTIONS, 1 OF 3

REFERENCE SHEET NO. C09

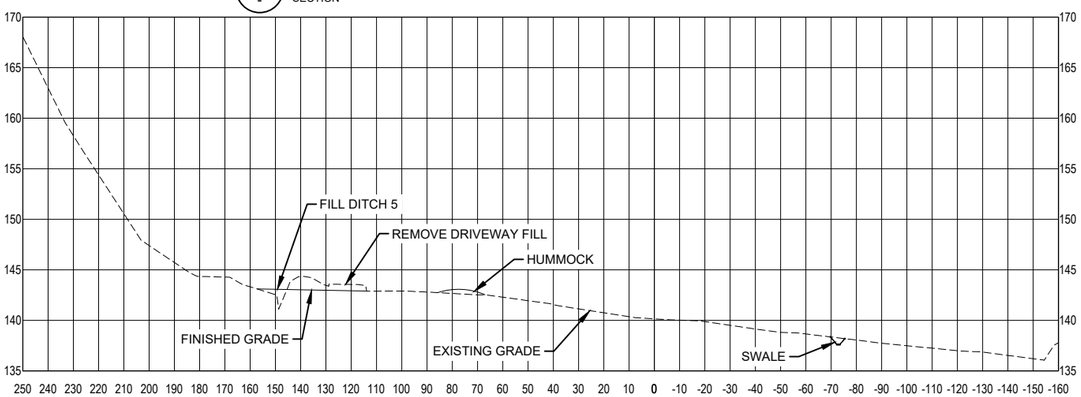
SHEET 20 OF 37 SHEETS

2/27/2019 4:42:33 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\C09 SITE SECTIONS.DWG

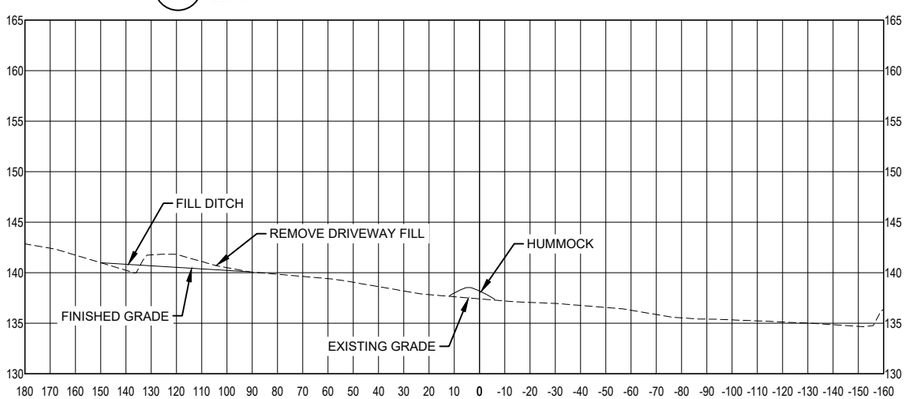
SECTION 34, T27N, R5E, W.M.



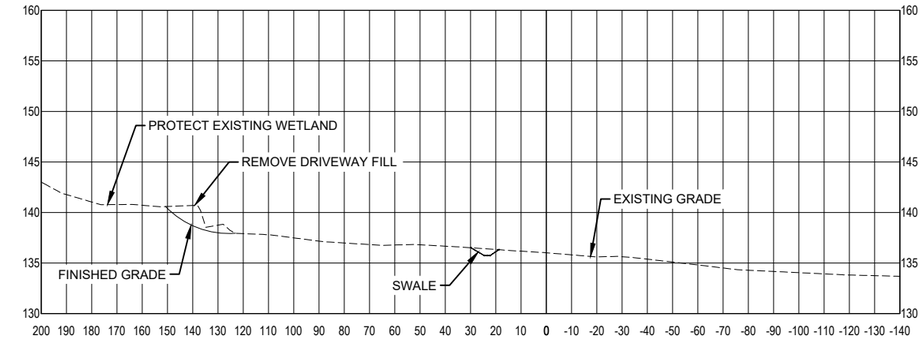
4 / - 3+50 SECTION 1"=30'



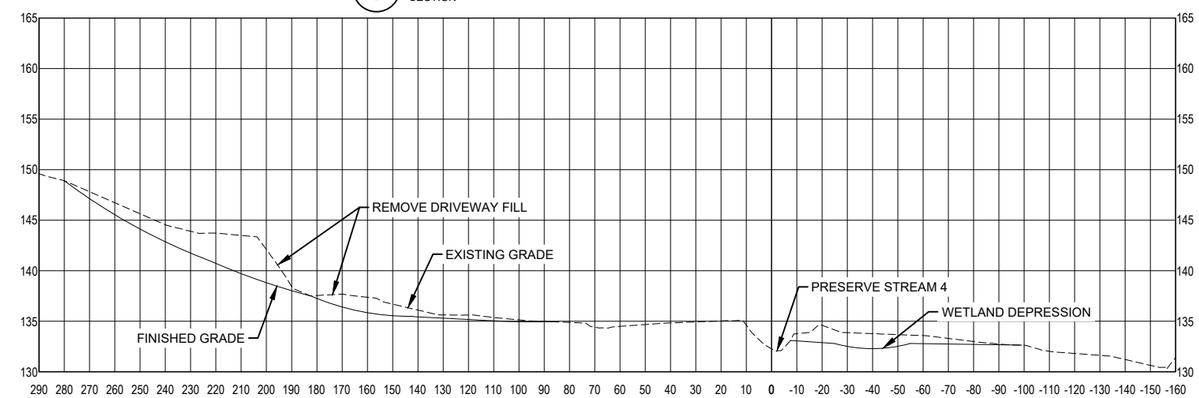
5 / - 4+50 SECTION 1"=30'



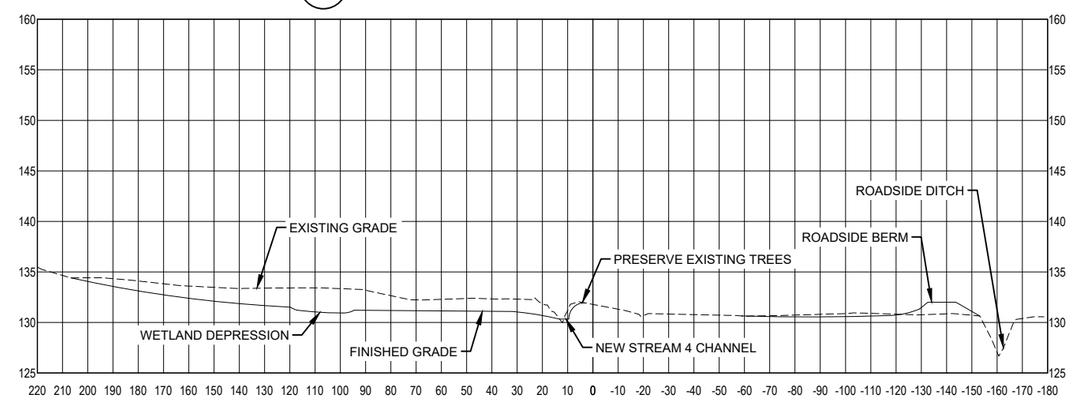
6 / - 5+50 SECTION 1"=30'



7 / - 6+50 SECTION 1"=30'



8 / - 7+25 SECTION 1"=30'



9 / - 8+50 SECTION 1"=30'

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PRELIMINARY

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SNOHOMISH COUNTY ENGINEER

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SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

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LITTLE BEAR CREEK ADVANCED MITIGATION SITE

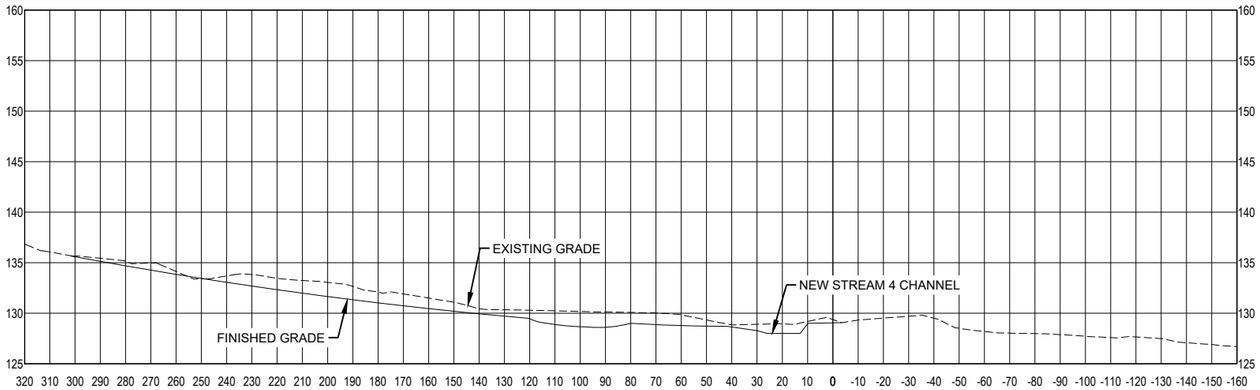
SITE SECTIONS, 2 OF 3

REFERENCE SHEET NO. **C10**

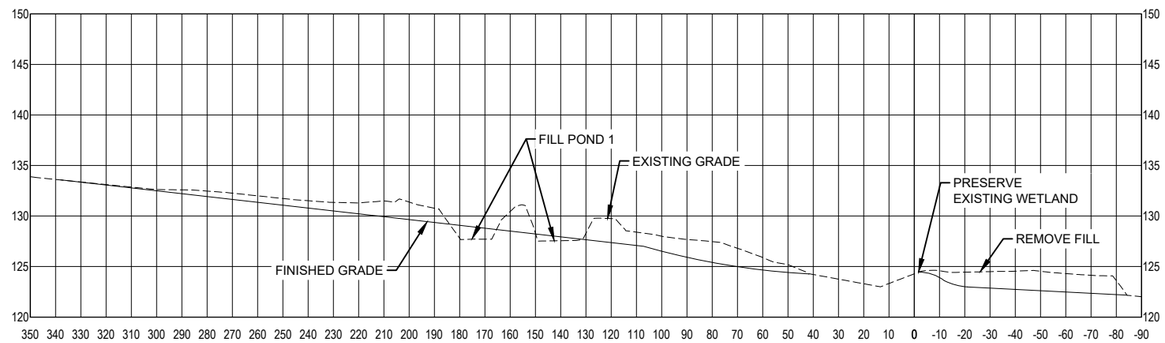
SHEET **21** OF **37** SHEETS

2/27/2019 4:42:47 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\C10 SITE SECTIONS.DWG

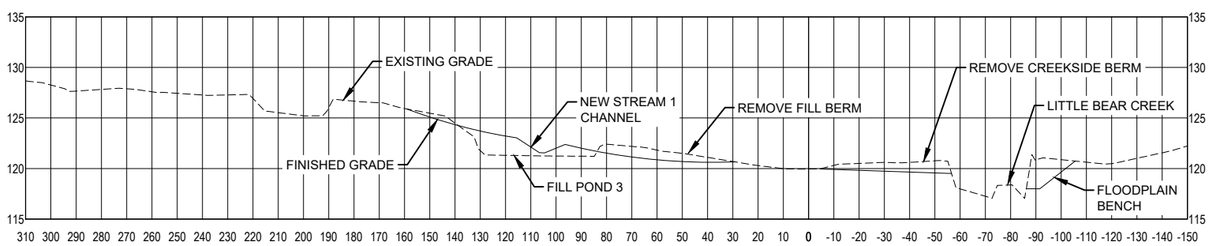
SECTION 34, T27N, R5E, W.M.



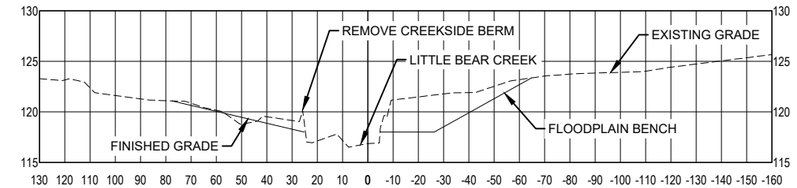
10 - 9+50 SECTION 1"=30'



11 - 10+50 SECTION 1"=30'



12 - 11+75 SECTION 1"=30'



13 - 12+50 SECTION 1"=30'

NOTES

1. SEE SHEET C01 FOR SECTION LOCATIONS.

NOT FOR CONSTRUCTION

DATE	NO.	REVISION	BY
10/12/18			

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DESIGNED BY: ESB	DRAWN BY: AMF

PRELIMINARY

90% DESIGN

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SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

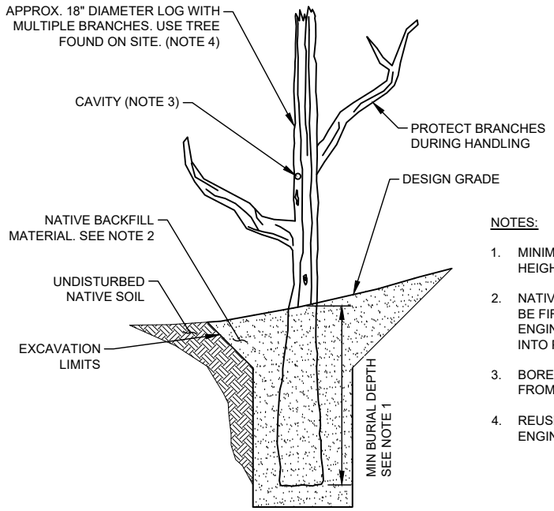
LITTLE BEAR CREEK ADVANCED MITIGATION SITE

SITE SECTIONS, 3 OF 3

REFERENCE SHEET NO. C11

SHEET 22 OF 37 SHEETS

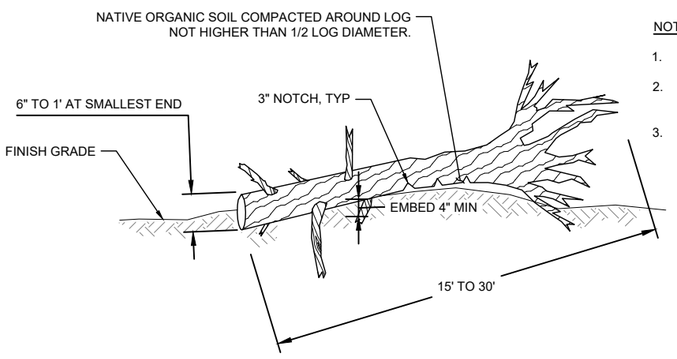
2/27/2019 4:43:01 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\C11 SITE SECTIONS.DWG



NOTES:

1. MINIMUM SNAG BURIAL DEPTH TO BE 1/3 OF TOTAL HEIGHT.
2. NATIVE BACKFILL TO BE PLACED IN 6" LIFTS AND SHOULD BE FIRMLY COMPACTED MEETING THE APPROVAL OF THE ENGINEER. IN SOFT SOILS, SNAGS MAY ALSO BE DRIVEN INTO PLACE.
3. BORE 1" DIAMETER HOLE 6" DEEP ANGLED 10° DOWN FROM HORIZONTAL. 3 HOLES PER SNAG.
4. REUSE SALVAGED TREES FOR SNAGS, AS DIRECTED BY ENGINEER.

1 / - ARTIFICIAL SNAG NTS
DETAIL



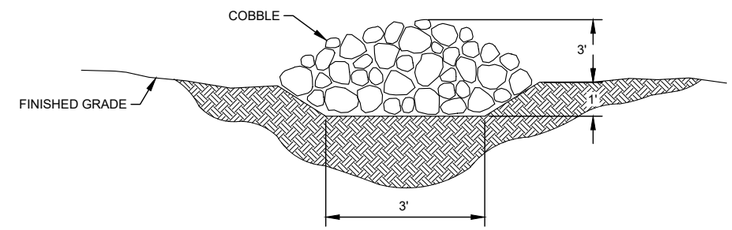
NOTES:

1. PLACE LOG ON CONTOUR.
2. INCLUDE MAJOR BRANCHES, BARK, AND ROOT WAD.
3. TAMP LOG WITH MACHINERY TO ENSURE SECURE PLACEMENT.

2 / - HABITAT LOG NTS
DETAIL

NOTES:

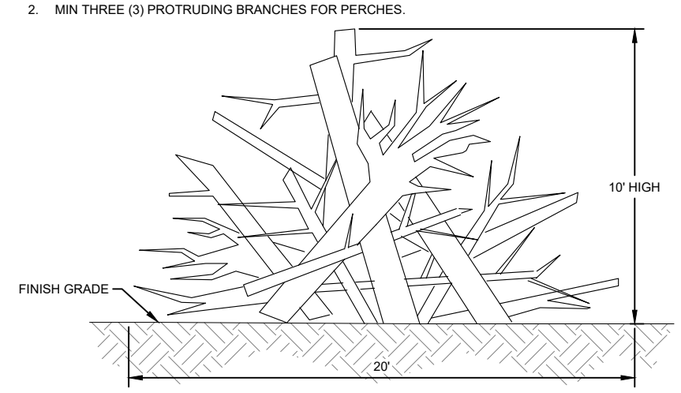
1. ROCK PILES TO BE CONSTRUCTED OF NATIVE COBBLES AND BOULDERS EXCAVATED WITHIN THE LIMITS OF GRADING.
2. ROCKS SHALL BE CLEANED AND FREE OF SOIL PRIOR TO PILE CONSTRUCTION.
3. ROCKS SHALL BE MOSTLY ROUNDED WITH SOME JAGGED EDGES AND RANGE IN DIAMETER FROM 2" TO 2'. LARGER ROCKS MAY BE GROUPED TOGETHER AND PARTIALLY BURIED TO CREATE BURROW HABITAT. ACHIEVE A PILE DIAMETER OF 5' AND PILE HEIGHT OF 4' IF SITE QUANTITIES ALLOW.
4. CONSTRUCT PILES TO INCLUDE A VARIETY OF INTERSTITIAL SPACES NOT TO EXCEED SIX INCHES MAXIMUM AS DIRECTED BY THE BIOLOGIST OR ENGINEER.



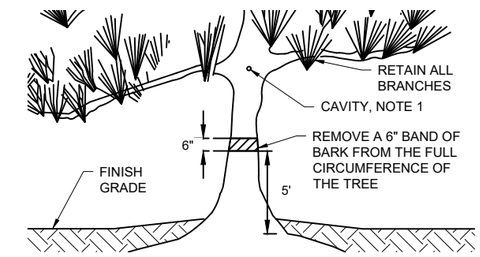
3 / - ROCK PILE NTS
DETAIL

NOTES

1. CONSTRUCT BRUSH PILES WITH BRANCHES OF VARYING SIZES. SEE SPECIAL PROVISIONS.
2. MIN THREE (3) PROTRUDING BRANCHES FOR PERCHES.



4 / - BRUSH PILE NTS
DETAIL



5 / - SNAG CREATION NTS
DETAIL

NOTES:

1. BORE 1" DIAMETER HOLE 6" DEEP ANGLED 10° DOWN FROM HORIZONTAL. 3 HOLES PER SNAG.

NOT FOR CONSTRUCTION

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10/12/18			

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UPI NO.:	FED. AID PROJ. NO.:
SURVEY NO.:	FIELD BOOK(S):
HORZ. DATUM: LOCAL	VERT. DATUM: NAVD 88
DESIGNED BY: ESB, BDT	DRAWN BY: AMF, RK

PRELIMINARY
90% DESIGN

REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

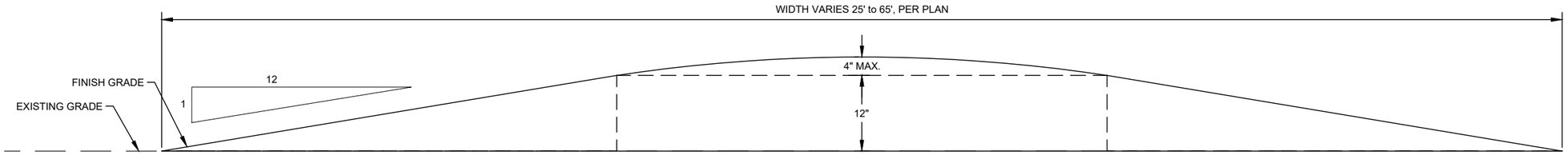
LITTLE BEAR CREEK ADVANCED MITIGATION SITE

DETAILS - HABITAT STRUCTURES

REFERENCE SHEET NO. C12

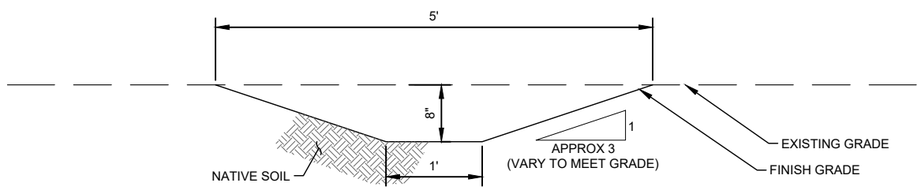
SHEET 23 OF 37 SHEETS

2/27/2019 4:43:10 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\C12 DETAILS - HABITAT STRUCTURES 1 OF 2.DWG



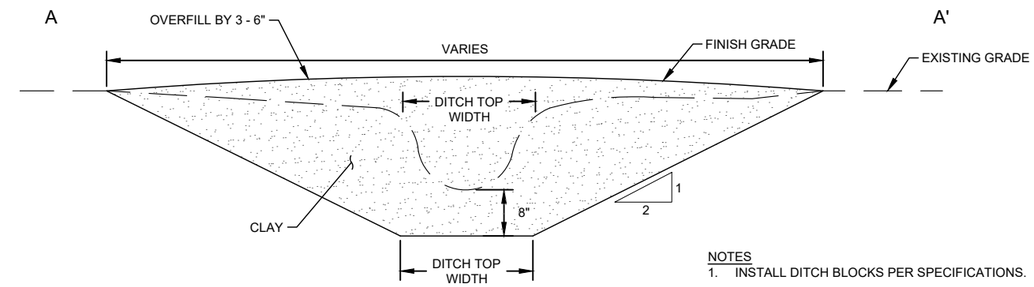
1 - HUMMOCK SECTION NTS

NOTES
1. CONSTRUCT HUMMOCKS FROM ORGANIC SOILS SALVAGED FROM GRADING ACTIVITIES AS SHOWN ON PLANS.
2. CONSTRUCT HUMMOCKS AT A 12:1 FILL SLOPE UNTIL A TARGET THICKNESS OF 12" IS ACHIEVED. THEN GENTLY ROUND HUMMOCK TOP. MAXIMUM HUMMOCK HEIGHT TO EXCEED TARGET BY NO MORE THAN 4".
3. COMPACT TO A FIRM AND UNYIELDING CONDITION.
4. GRADING SHALL BE ROUNDED AND SMOOTH WITH NO ABRUPT BREAKS.



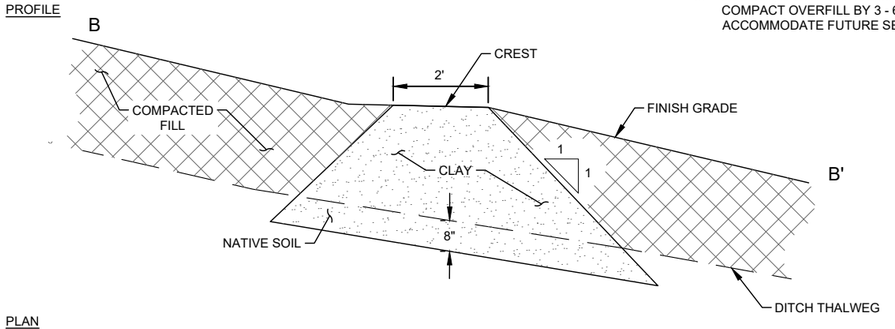
2 - SWALE SECTION NTS

SECTION

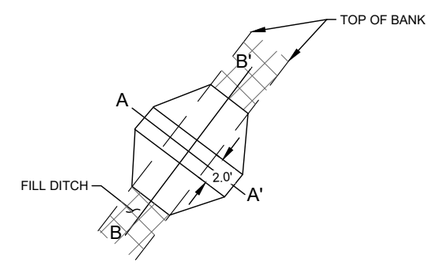


NOTES
1. INSTALL DITCH BLOCKS PER SPECIFICATIONS.
2. FILL DITCH WITH NATIVE MATERIAL AND COMPACT OVERFILL BY 3 - 6" TO ACCOMMODATE FUTURE SETTLEMENT.

PROFILE



PLAN



3 - DITCH BLOCK DETAIL NTS

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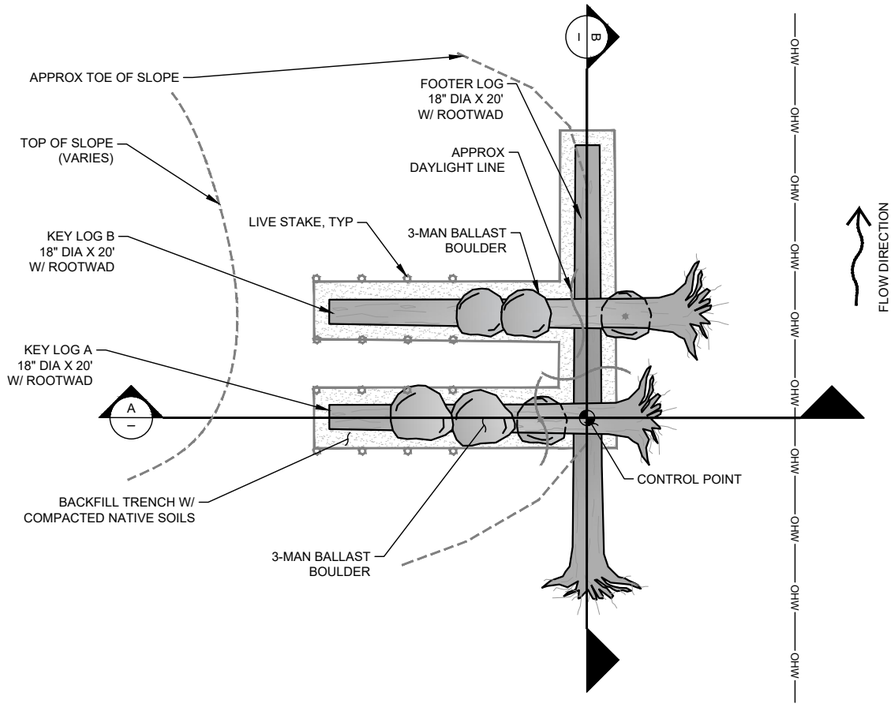
LITTLE BEAR CREEK ADVANCED MITIGATION SITE

DETAILS - GRADING

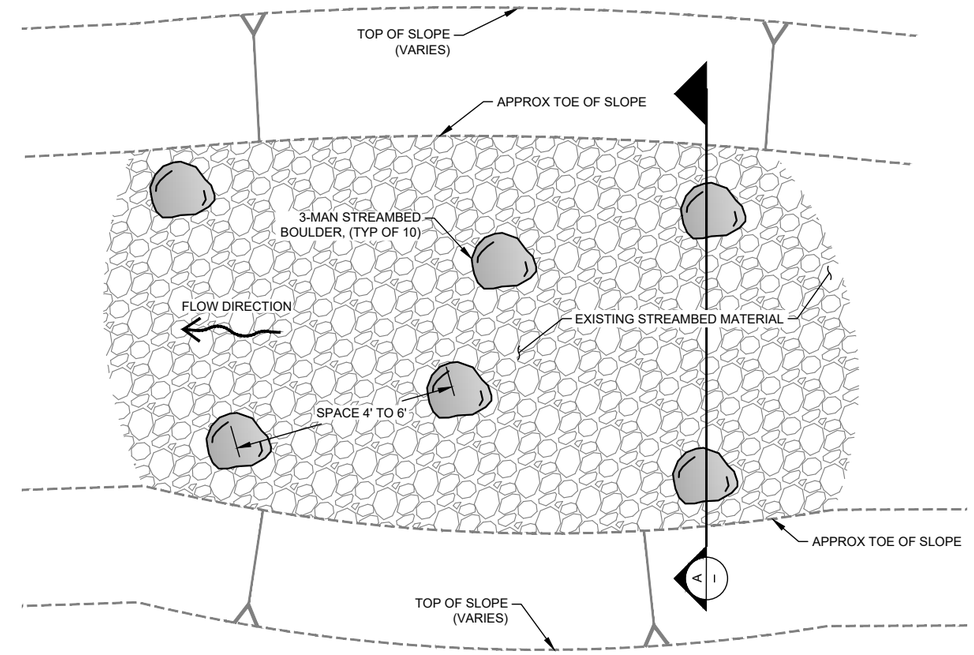
REFERENCE SHEET NO. C13

SHEET 24 OF 37 SHEETS

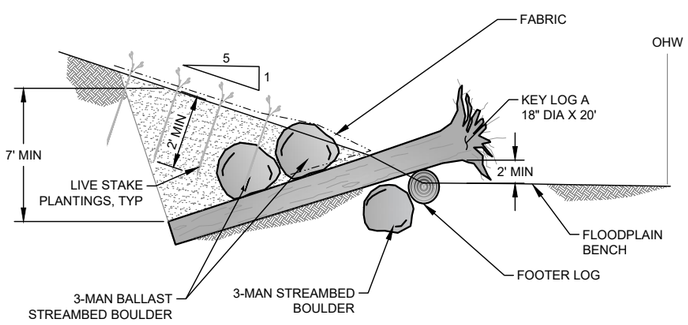
2/27/2019 4:43:17 PM - HANNAH SNOW - \\ESA\ES\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\C13 DETAILS - GRADING.DWG



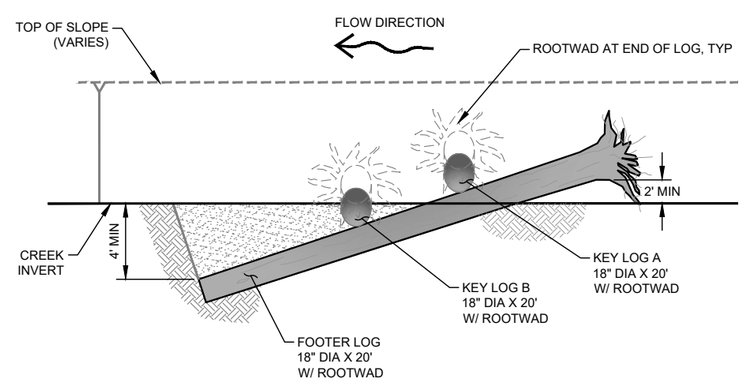
PLAN



PLAN



SECTION A



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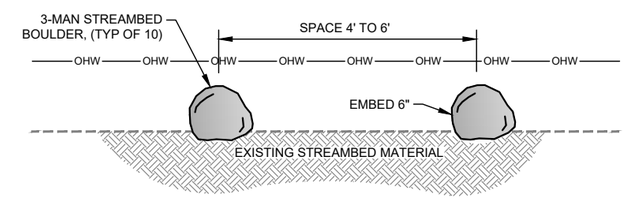

SECTION A

1 - LARGE WOOD STRUCTURE NTS
DETAIL

2 - BOULDER CLUSTER NTS
DETAIL

NOT FOR CONSTRUCTION

DATE	NO.	REVISION	BY
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DESIGNED BY: ESB, BDT	DRAWN BY: AMF, RK

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REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

STREAM DETAILS

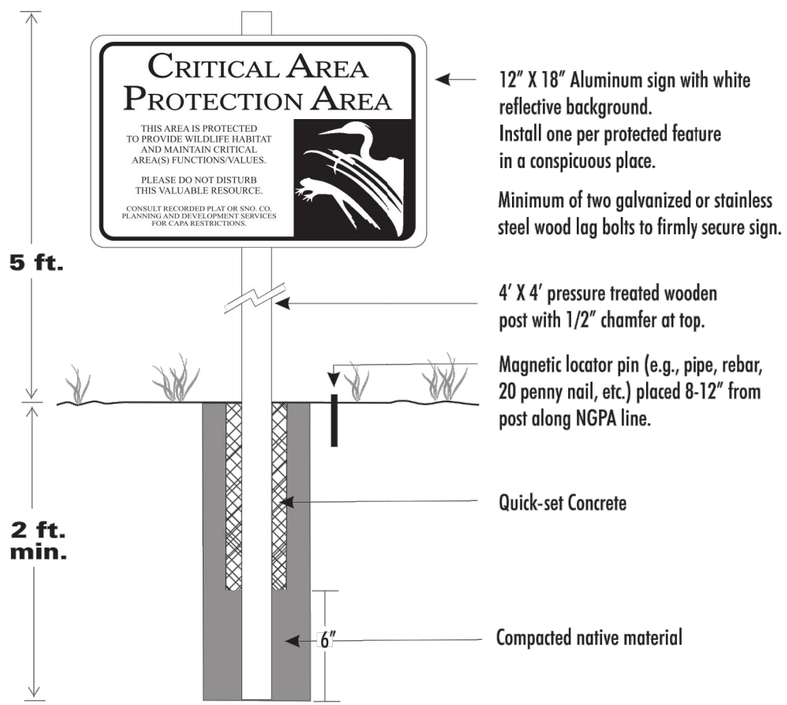
REFERENCE SHEET NO. C14

SHEET 25 OF 37 SHEETS

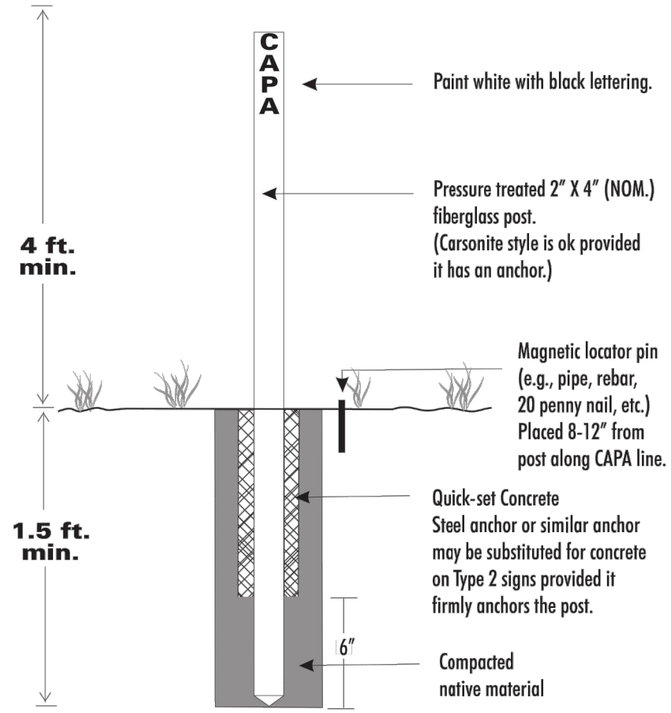
2/27/2019 4:43:27 PM - EGUTIERREZ - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\C14 STREAM DETAILS, 1 OF 2.DWG

Critical Area Protection Area
Sign Installation Guidelines

TYPE 1 SIGN



TYPE 2 SIGN



NOTES:

1. CAPA signs shall be placed as shown around the perimeter of the Critical Area Protection Area. Minimum placement shall include one Type 1 sign per wetland, and at least one Type 1 sign shall be placed in any lot that borders the Critical Area Protection Area, unless otherwise approved by the County biologist.
2. Sign placement shall be subject to the approval of Snohomish County. Alternative sign designs may be submitted to Snohomish County for approval.
3. All signs must be secure and permanent.
4. Sign materials to be provided by the contracting agency.

NOT FOR CONSTRUCTION

DATE	NO.	REVISION	BY
10/12/18			

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SNOHOMISH COUNTY ENGINEER

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FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

CRITICAL AREA PROTECTION AREA SIGNAGE

REFERENCE SHEET NO. C15

SHEET 26 OF 37 SHEETS

2/27/2019 4:43:33 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\C16 CRITICAL AREA PROTECTION AREA SIGNAGE.DWG

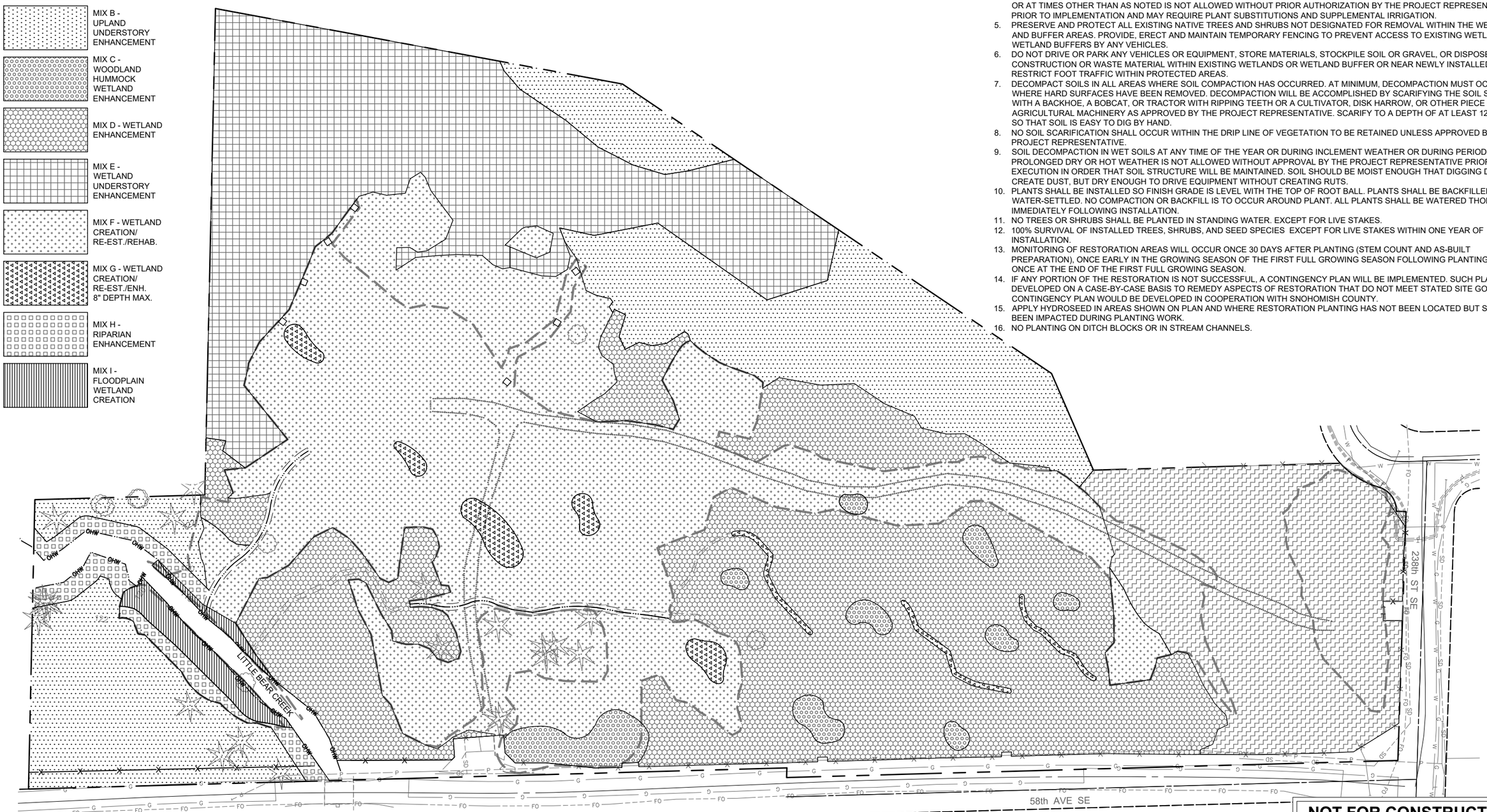
PLANTING LEGEND

- MIX A - UPLAND ENHANCEMENT
- MIX B - UPLAND UNDERSTORY ENHANCEMENT
- MIX C - WOODLAND HUMMOCK WETLAND ENHANCEMENT
- MIX D - WETLAND ENHANCEMENT
- MIX E - WETLAND UNDERSTORY ENHANCEMENT
- MIX F - WETLAND CREATION/ RE-EST./REHAB.
- MIX G - WETLAND CREATION/ RE-EST./ENH. 8" DEPTH MAX.
- MIX H - RIPARIAN ENHANCEMENT
- MIX I - FLOODPLAIN WETLAND CREATION

SECTION 34, T27N, R5E, W.M.

N

50 0 50 100
SCALE IN FEET



NOTES

1. FOR PLANTING AND SEEDING SCHEDULES SEE SHEETS L07, L08, & L09.
2. FOR PLANTING & SOIL PREPARATION DETAILS SEE SHEETS L10 & L11.
3. ALL WORK IN SATURATED SOILS AT ANY TIME OF THE YEAR OR DURING INCLEMENT WEATHER IS NOT ALLOWED WITHOUT APPROVAL BY THE PROJECT REPRESENTATIVE PRIOR TO EXECUTION, AND MAY REQUIRE USE OF TECHNIQUES AND EQUIPMENT DESIGNED TO MINIMIZE IMPACTS TO SATURATED SOILS OR ADJACENT AREAS OF STANDING WATER.
4. PLANTING OF WOODY MATERIAL SHOULD OCCUR BETWEEN OCTOBER 1 AND MARCH 1 TO TAKE ADVANTAGE OF SEASONAL RAINS AND GREATER AVAILABILITY OF PLANT MATERIAL. PLANTING DURING ABNORMALLY HOT, DRY, OR FREEZING WEATHER, OR AT TIMES OTHER THAN AS NOTED IS NOT ALLOWED WITHOUT PRIOR AUTHORIZATION BY THE PROJECT REPRESENTATIVE PRIOR TO IMPLEMENTATION AND MAY REQUIRE PLANT SUBSTITUTIONS AND SUPPLEMENTAL IRRIGATION.
5. PRESERVE AND PROTECT ALL EXISTING NATIVE TREES AND SHRUBS NOT DESIGNATED FOR REMOVAL WITHIN THE WETLAND AND BUFFER AREAS. PROVIDE, ERECT AND MAINTAIN TEMPORARY FENCING TO PREVENT ACCESS TO EXISTING WETLANDS OR WETLAND BUFFERS BY ANY VEHICLES.
6. DO NOT DRIVE OR PARK ANY VEHICLES OR EQUIPMENT, STORE MATERIALS, STOCKPILE SOIL OR GRAVEL, OR DISPOSE OF ANY CONSTRUCTION OR WASTE MATERIAL WITHIN EXISTING WETLANDS OR WETLAND BUFFER OR NEAR NEWLY INSTALLED PLANTS. RESTRICT FOOT TRAFFIC WITHIN PROTECTED AREAS.
7. DECOMPACT SOILS IN ALL AREAS WHERE SOIL COMPACTION HAS OCCURRED. AT MINIMUM, DECOMPACTION MUST OCCUR WHERE HARD SURFACES HAVE BEEN REMOVED. DECOMPACTION WILL BE ACCOMPLISHED BY SCARIFYING THE SOIL SURFACE WITH A BACKHOE, A BOBCAT, OR TRACTOR WITH RIPPING TEETH OR A CULTIVATOR, DISK HARROW, OR OTHER PIECE OF AGRICULTURAL MACHINERY AS APPROVED BY THE PROJECT REPRESENTATIVE. SCARIFY TO A DEPTH OF AT LEAST 12 INCHES SO THAT SOIL IS EASY TO DIG BY HAND.
8. NO SOIL SCARIFICATION SHALL OCCUR WITHIN THE DRIP LINE OF VEGETATION TO BE RETAINED UNLESS APPROVED BY THE PROJECT REPRESENTATIVE.
9. SOIL DECOMPACTION IN WET SOILS AT ANY TIME OF THE YEAR OR DURING INCLEMENT WEATHER OR DURING PERIODS OF PROLONGED DRY OR HOT WEATHER IS NOT ALLOWED WITHOUT APPROVAL BY THE PROJECT REPRESENTATIVE PRIOR TO EXECUTION IN ORDER THAT SOIL STRUCTURE WILL BE MAINTAINED. SOIL SHOULD BE MOIST ENOUGH THAT DIGGING DOESN'T CREATE DUST, BUT DRY ENOUGH TO DRIVE EQUIPMENT WITHOUT CREATING RUTS.
10. PLANTS SHALL BE INSTALLED SO FINISH GRADE IS LEVEL WITH THE TOP OF ROOT BALL. PLANTS SHALL BE BACKFILLED AND WATER-SETTLED. NO COMPACTION OR BACKFILL IS TO OCCUR AROUND PLANT. ALL PLANTS SHALL BE WATERED THOROUGHLY IMMEDIATELY FOLLOWING INSTALLATION.
11. NO TREES OR SHRUBS SHALL BE PLANTED IN STANDING WATER. EXCEPT FOR LIVE STAKES.
12. 100% SURVIVAL OF INSTALLED TREES, SHRUBS, AND SEED SPECIES EXCEPT FOR LIVE STAKES WITHIN ONE YEAR OF INSTALLATION.
13. MONITORING OF RESTORATION AREAS WILL OCCUR ONCE 30 DAYS AFTER PLANTING (STEM COUNT AND AS-BUILT PREPARATION), ONCE EARLY IN THE GROWING SEASON OF THE FIRST FULL GROWING SEASON FOLLOWING PLANTING, AND ONCE AT THE END OF THE FIRST FULL GROWING SEASON.
14. IF ANY PORTION OF THE RESTORATION IS NOT SUCCESSFUL, A CONTINGENCY PLAN WILL BE IMPLEMENTED. SUCH PLANS ARE DEVELOPED ON A CASE-BY-CASE BASIS TO REMEDY ASPECTS OF RESTORATION THAT DO NOT MEET STATED SITE GOALS. THE CONTINGENCY PLAN WOULD BE DEVELOPED IN COOPERATION WITH SNOHOMISH COUNTY.
15. APPLY HYDROSEED IN AREAS SHOWN ON PLAN AND WHERE RESTORATION PLANTING HAS NOT BEEN LOCATED BUT SITE HAS BEEN IMPACTED DURING PLANTING WORK.
16. NO PLANTING ON DITCH BLOCKS OR IN STREAM CHANNELS.

NOT FOR CONSTRUCTION

DATE	NO.	REVISION	BY
10/12/18			

811 Know what's below. Call 811 before you dig.

UPI NO.:	FED. AID PROJ. NO.:
SURVEY NO.:	FIELD BOOK(S):
HORZ. DATUM: LOCAL	VERT. DATUM: NAVD 88
DESIGNED BY: ABG	DRAWN BY: DMS

PRELIMINARY

90% DESIGN

STATE OF WASHINGTON · DAVID M. BRASCHE · ARCHITECT · EXP 21

REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

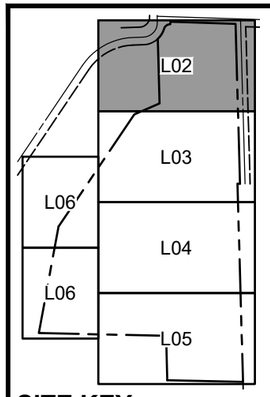
LITTLE BEAR CREEK ADVANCED MITIGATION SITE

PLANTING OVERVIEW PLAN

REFERENCE SHEET NO. **L01**

SHEET **27** OF **37** SHEETS

2/27/2019 4:43:59 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\L01 PLANTING OVERVIEW PLAN.DWG



SITE KEY

SECTION 34, T27N, R5E, W.M.

NOTES

1. FOR PLANTING AND SEEDING SCHEDULES SEE SHEETS L07, L08, & L09.
2. FOR PLANTING & SOIL PREPARATION DETAILS SEE SHEETS L10 & L11.

PLANTING LEGEND

- MIX A - UPLAND ENHANCEMENT
- MIX B - UPLAND UNDERSTORY ENHANCEMENT
- MIX C - WOODLAND HUMMOCK WETLAND ENHANCEMENT
- MIX D - WETLAND ENHANCEMENT
- MIX E - WETLAND UNDERSTORY ENHANCEMENT
- MIX F - WETLAND CREATION/ RE-EST./REHAB.
- MIX G - WETLAND CREATION/ RE-EST./ENH. 8" DEPTH MAX.
- MIX H - RIPARIAN ENHANCEMENT
- MIX I - FLOODPLAIN WETLAND CREATION

N

20 0 20 40
SCALE IN FEET

MATCHLINE - SEE SHEET L03

NOT FOR CONSTRUCTION

DATE	NO.	REVISION	BY
10/12/18			

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DESIGNED BY: ABG, ESB	DRAWN BY: ABG

PRELIMINARY

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STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT

REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

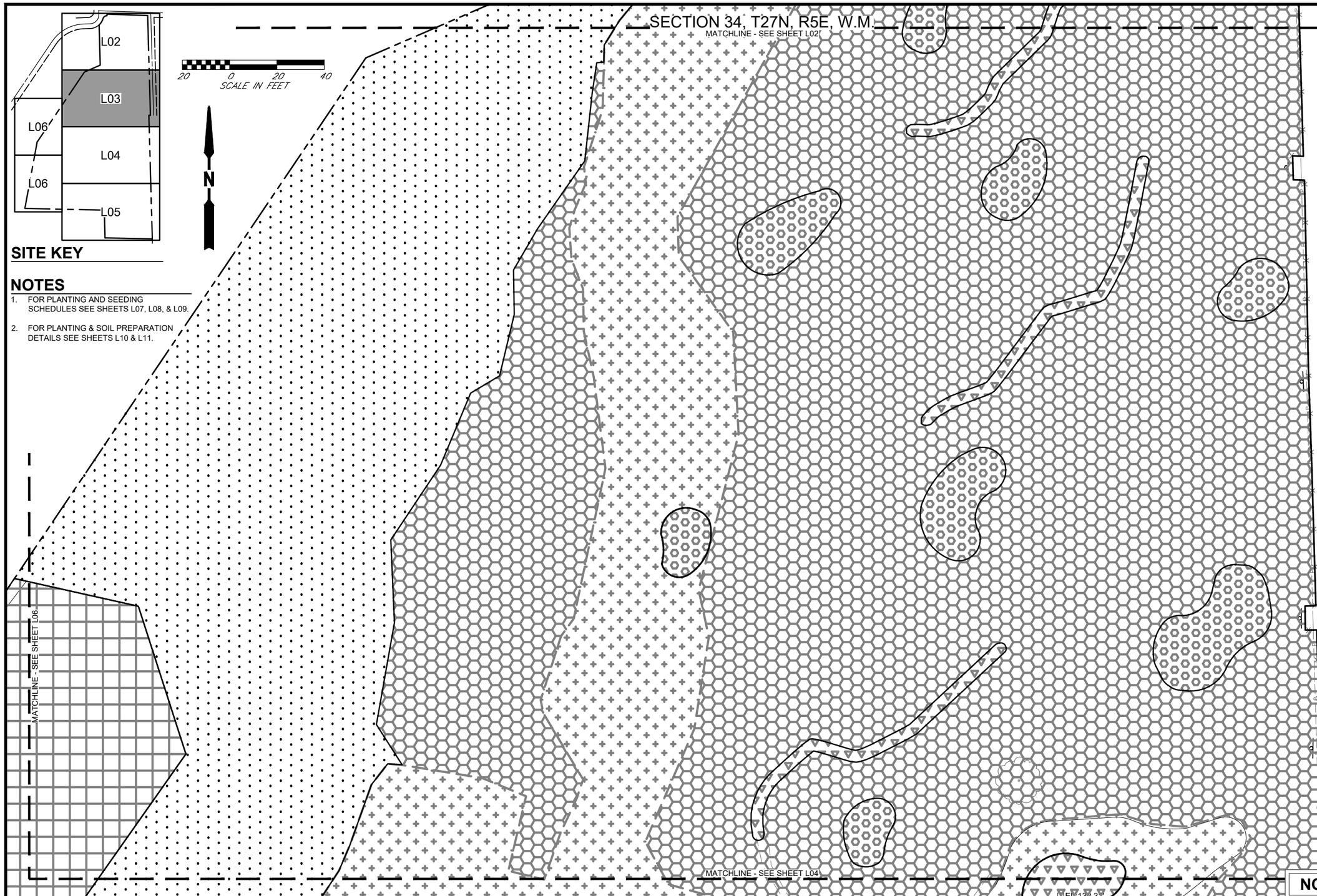
LITTLE BEAR CREEK ADVANCED MITIGATION SITE

PLANTING PLAN, 1 OF 5

REFERENCE SHEET NO. **L02**

SHEET **28** OF 37 SHEETS

2/27/2019 4:44:30 PM - HANNAH SNOW - \\ESAES\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\L02 PLANTING PLAN, 1 OF 5.DWG



SITE KEY

NOTES

1. FOR PLANTING AND SEEDING SCHEDULES SEE SHEETS L07, L08, & L09.
2. FOR PLANTING & SOIL PREPARATION DETAILS SEE SHEETS L10 & L11.

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- MIX H - RIPARIAN ENHANCEMENT
- MIX I - FLOODPLAIN WETLAND CREATION

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2/27/2019 4:45:01 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\L03 PLANTING PLAN, 2 OF 5.DWG

DATE	NO.	REVISION	BY
10/12/18			

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HORZ. DATUM: LOCAL	VERT. DATUM: NAVD 88
DESIGNED BY: ABG, ESB	DRAWN BY: ABG

PRELIMINARY

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SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

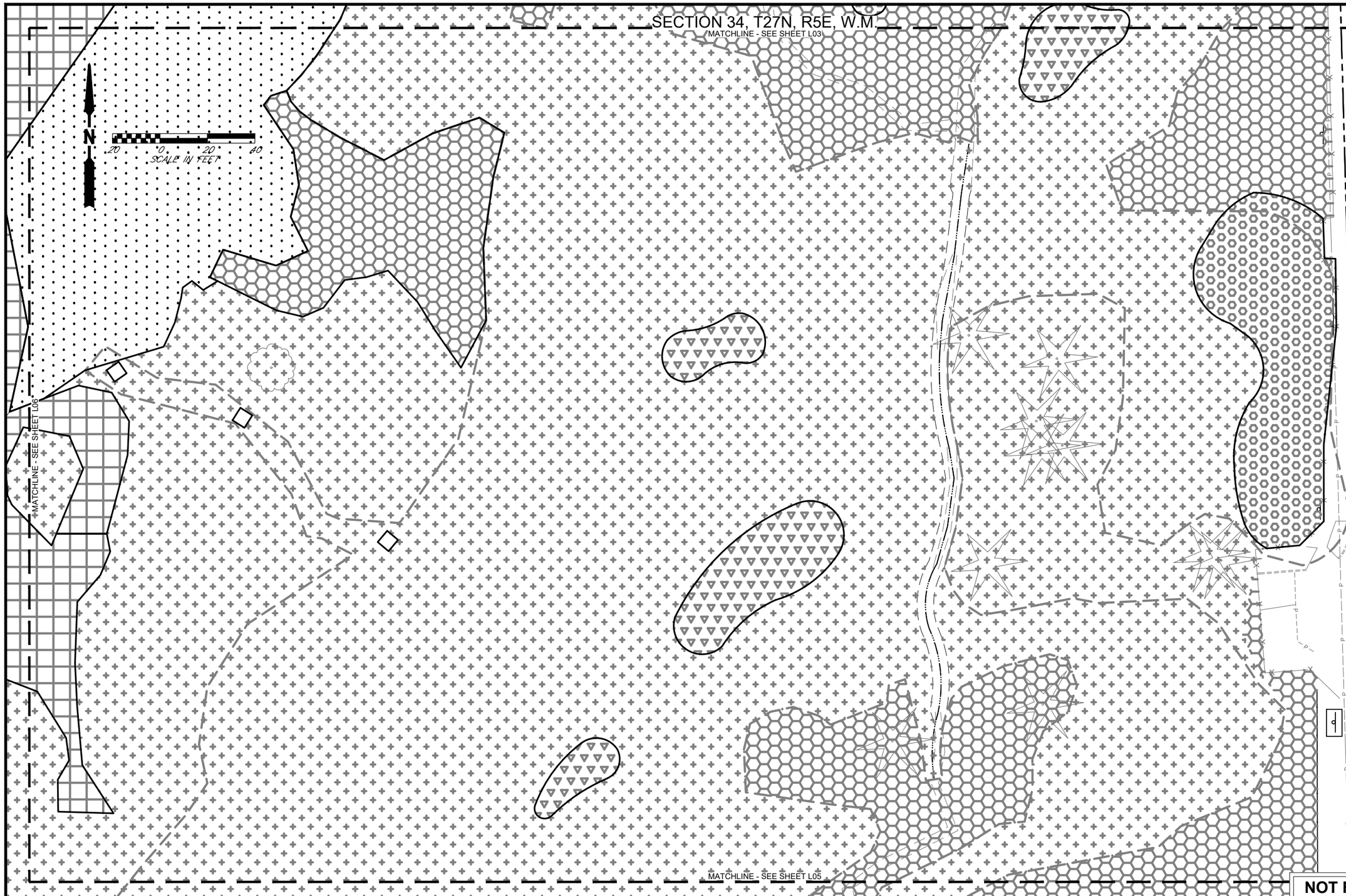
FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

PLANTING PLAN, 2 OF 5

REFERENCE SHEET NO. L03

SHEET 29 OF 37 SHEETS



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NOTES

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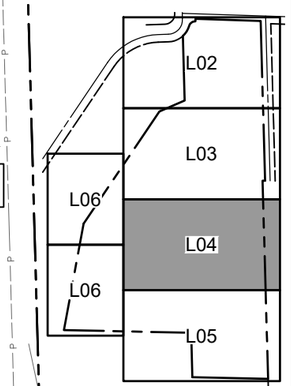
2. FOR PLANTING & SOIL PREPARATION DETAILS SEE SHEETS L10 & L11.



SITE KEY

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HORZ. DATUM: LOCAL	VERT. DATUM: NAVD 88
DESIGNED BY: ABG, ESB	DRAWN BY: ABG

PRELIMINARY

90% DESIGN

STATE OF WASHINGTON — EXP. 2

REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

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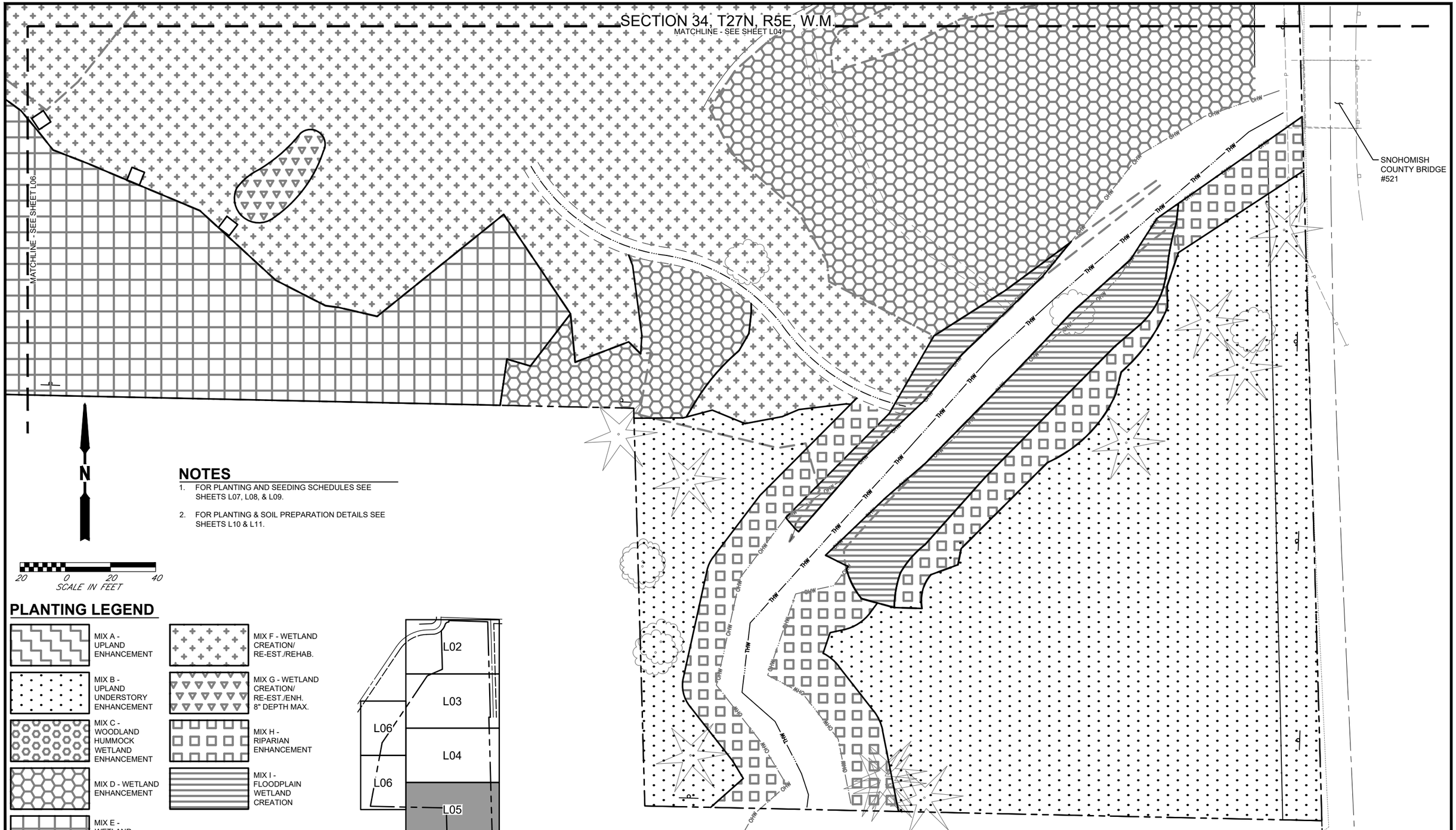
LITTLE BEAR CREEK ADVANCED MITIGATION SITE

PLANTING PLAN, 3 OF 5

REFERENCE SHEET NO. L04

SHEET 30 OF 37 SHEETS

2/27/2019 4:45:30 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\L04 PLANTING PLAN, 3 OF 5.DWG



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NOTES

1. FOR PLANTING AND SEEDING SCHEDULES SEE SHEETS L07, L08, & L09.
2. FOR PLANTING & SOIL PREPARATION DETAILS SEE SHEETS L10 & L11.

PLANTING LEGEND

- MIX A - UPLAND ENHANCEMENT
- MIX B - UPLAND UNDERSTORY ENHANCEMENT
- MIX C - WOODLAND HUMMOCK WETLAND ENHANCEMENT
- MIX D - WETLAND ENHANCEMENT
- MIX E - WETLAND UNDERSTORY ENHANCEMENT
- MIX F - WETLAND CREATION/ RE-EST./REHAB.
- MIX G - WETLAND CREATION/ RE-EST./ENH. 8" DEPTH MAX.
- MIX H - RIPARIAN ENHANCEMENT
- MIX I - FLOODPLAIN WETLAND CREATION

SITE KEY

NOT FOR CONSTRUCTION

DATE	NO.	REVISION	BY
10/12/18			

Know what's below. Call 811 before you dig.

UPI NO.:	FED. AID PROJ. NO.:
SURVEY NO.:	FIELD BOOK(S):
HORZ. DATUM: LOCAL	VERT. DATUM: NAVD 88
DESIGNED BY: ABG, ESB	DRAWN BY: ABG

PRELIMINARY

90% DESIGN

STATE OF WASHINGTON LANDSCAPE ARCHITECT EXP. 2/27/2019

REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

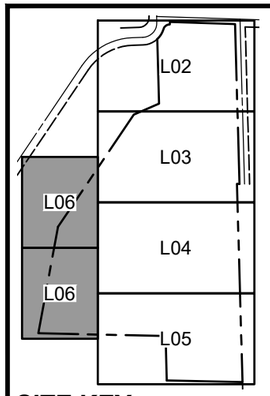
LITTLE BEAR CREEK ADVANCED MITIGATION SITE

PLANTING PLAN, 4 OF 5

REFERENCE SHEET NO. L05

SHEET 31 OF 37 SHEETS

2/27/2019 4:46:03 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\L05 PLANTING PLAN, 4 OF 5.DWG



SITE KEY

NOTES

1. FOR PLANTING AND SEEDING SCHEDULES SEE SHEETS L07, L08, & L09.
2. FOR PLANTING & SOIL PREPARATION DETAILS SEE SHEETS L10 & L11.

PLANTING LEGEND

- MIX A - UPLAND ENHANCEMENT
- MIX B - UPLAND UNDERSTORY ENHANCEMENT
- MIX C - WOODLAND HUMMOCK WETLAND ENHANCEMENT
- MIX D - WETLAND ENHANCEMENT
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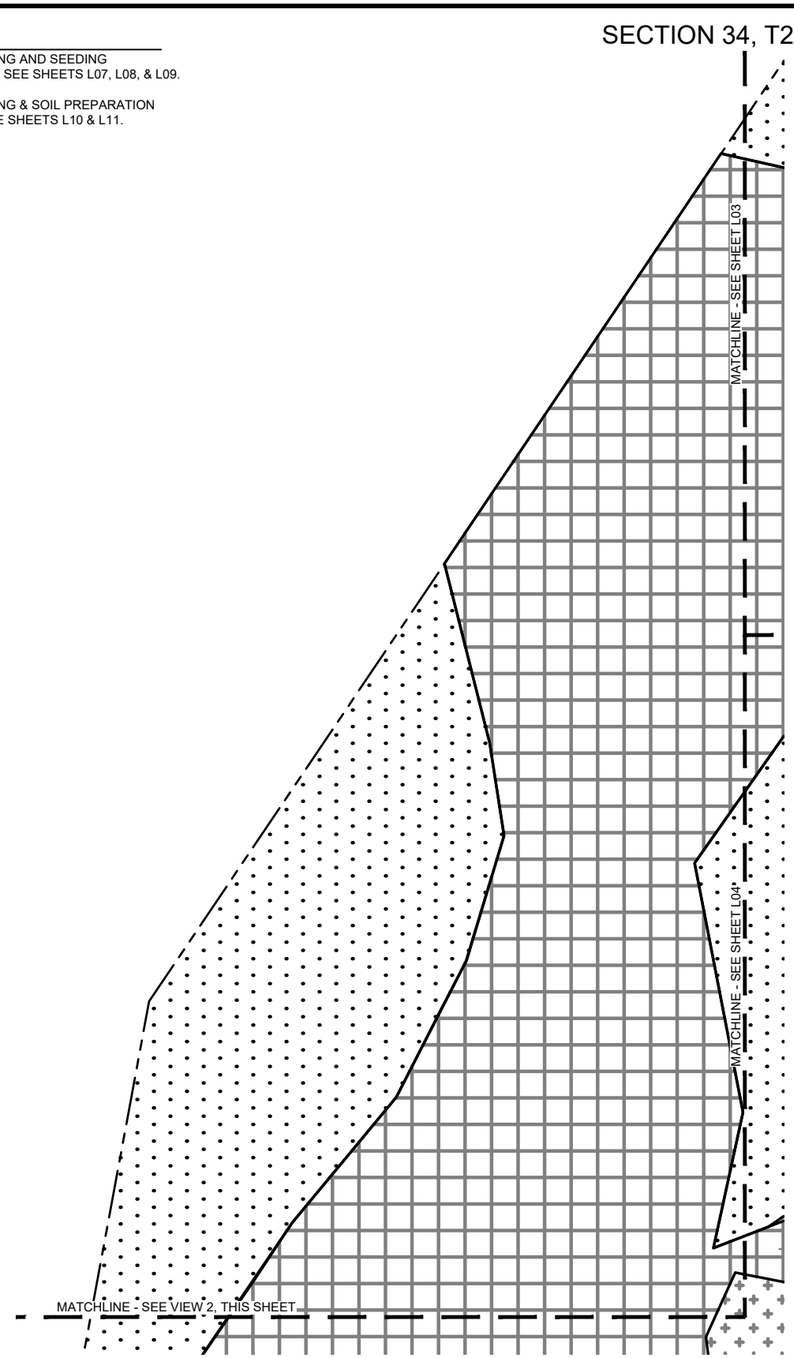
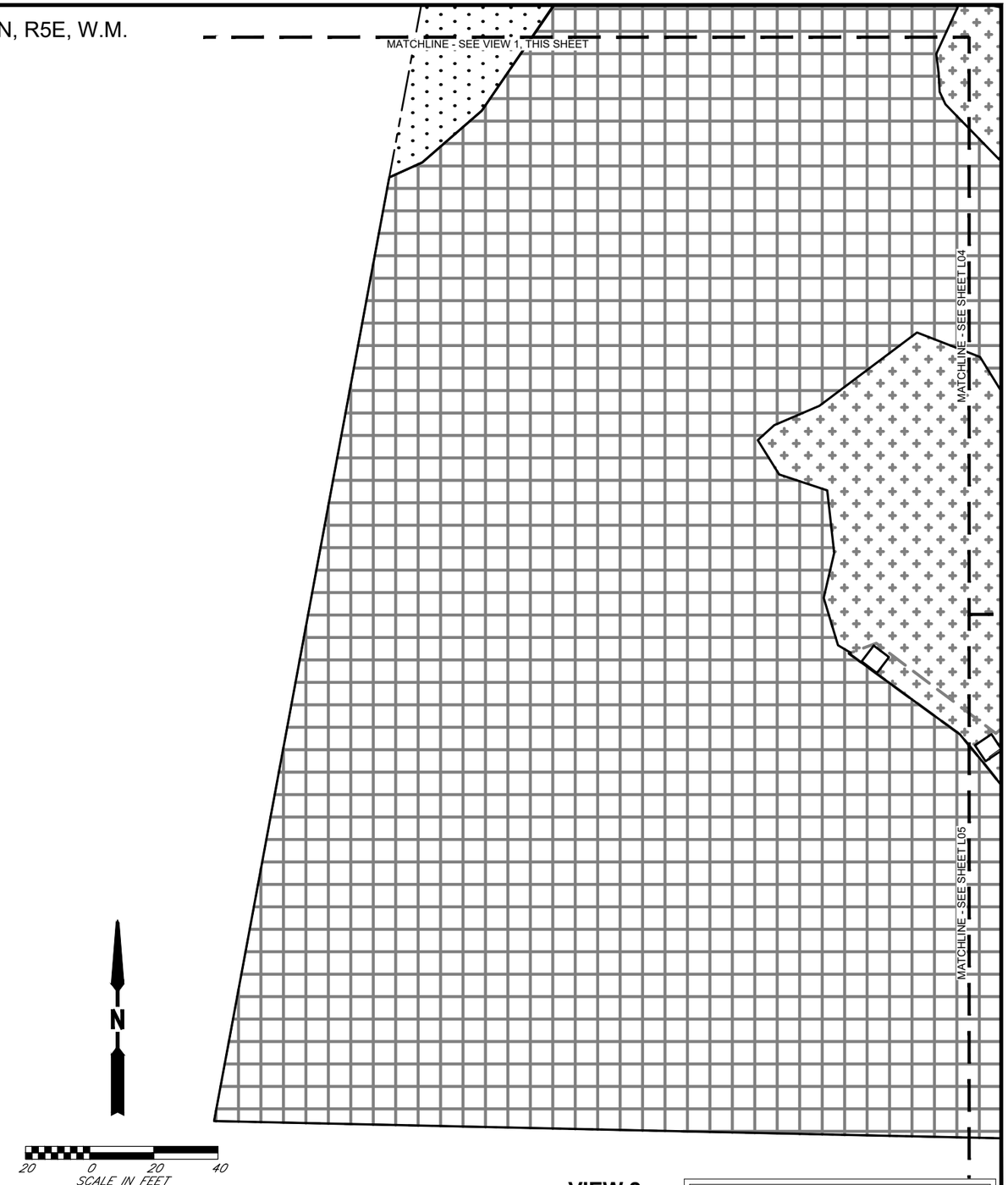


VIEW 1



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VIEW 2

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PRELIMINARY

90% DESIGN

STATE OF WASHINGTON LANDSCAPE ARCHITECT EXP. 2/1/19

REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

PLANTING PLAN, 5 OF 5

REFERENCE SHEET NO. **L06**

SHEET **32** OF **37** SHEETS

2/27/2019 4:46:38 PM - HANNAH SNOW - \\ESA\ES\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\L06 PLANTING PLAN, 5 OF 5.DWG

SECTION 34, T27N, R5E, W.M.

PLANTING MIX A - UPLAND ENHANCEMENT (75,194 SF)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	INSTALL SIZE	SPACING OC	DISTRIBUTION	QUANTITY
TREES	ABIES GRANDIS	GRAND FIR	1 GAL CONT.	10'	25%	217
	ACER MACROPHYLLUM	BIGLEAF MAPLE	1 GAL CONT.	10'	15%	130
	PRUNUS EMARGINATA	BITTER CHERRY	1 GAL CONT.	10'	10%	87
	PSEUDOTSUGA MENZIESII	DOUGLAS-FIR	1 GAL CONT.	10'	25%	217
	TSUGA HETEROPHYLLA	WESTERN HEMLOCK	1 GAL CONT.	10'	25%	217
SHRUBS	ACER CIRCINATUM	VINE MAPLE	1 GAL. CONT.	5'	13%	339
	CORYLUS CORNUTA	BEAKED HAZLENUT	1 GAL. CONT.	5'	5%	130
	HOLODISCUS DISCOLOR	OCEANSPRAY	1 GAL. CONT.	5'	13%	339
	OEMLERIA CERASIFORMIS	INDIAN PLUM	1 GAL. CONT.	5'	13%	339
	RIBES SANGUINEUM	RED FLOWERING CURRANT	1 GAL. CONT.	5'	5%	130
	ROSA NUTKANA	NOOTKA ROSE	1 GAL. CONT.	5'	13%	339
	ROSA PISOCARPA	CLUSTER ROSE	1 GAL. CONT.	5'	5%	130
	RUBUS PARVIFLORUS	THIMBLEBERRY	1 GAL. CONT.	5'	13%	339
	SAMBUCUS RACEMOSA	RED ELDERBERRY	1 GAL. CONT.	5'	5%	130
	SYMPHORICARPOS ALBUS	SNOWBERRY	1 GAL. CONT.	5'	13%	339
	VACCINIUM OVATUM	EVERGREEN HUCKLEBERY	1 GAL. CONT.	5'	2%	52
SEEDING	APPLY SEED MIX 1 - UPLAND					
SOIL PREPARATION	SOIL PREPARATION TYPE 2, SEE DETAIL 2 ON SHEET L11					
MULCH	INSTALL 4" DEPTH MULCH AT PLANTING AREA					

PLANTING MIX B - UPLAND UNDERSTORY ENHANCEMENT (112,906 SF)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	INSTALL SIZE	SPACING OC	DISTRIBUTION	QUANTITY
TREES	PSEUDOTSUGA MENZIESII	DOUGLAS-FIR	1 GAL. CONT.	10'	30%	117
	THUJA PLICATA	WESTERN REDCEDAR	1 GAL. CONT.	10'	40%	156
	TSUGA HETEROPHYLLA	WESTERN HEMLOCK	1 GAL. CONT.	10'	30%	117
SHRUBS	ACER CIRCINATUM	VINE MAPLE	1 GAL. CONT.	5'	13%	153
	CORYLUS CORNUTA	BEAKED HAZLENUT	1 GAL. CONT.	5'	5%	59
	HOLODISCUS DISCOLOR	OCEANSPRAY	1 GAL. CONT.	5'	13%	153
	OEMLERIA CERASIFORMIS	INDIAN PLUM	1 GAL. CONT.	5'	13%	153
	POLYSTICHUM MUNITUM	WESTERN SWORD FERN	1 GAL. CONT.	5'	1%	12
	RIBES SANGUINEUM	RED FLOWERING CURRANT	1 GAL. CONT.	5'	5%	59
	ROSA NUTKANA	NOOTKA ROSE	1 GAL. CONT.	5'	13%	153
	ROSA PISOCARPA	CLUSTER ROSE	1 GAL. CONT.	5'	5%	59
	RUBUS PARVIFLORUS	THIMBLEBERRY	1 GAL. CONT.	5'	13%	153
	SAMBUCUS RACEMOSA	RED ELDERBERRY	1 GAL. CONT.	5'	5%	59
	SYMPHORICARPOS ALBUS	SNOWBERRY	1 GAL. CONT.	5'	13%	153
	VACCINIUM OVATUM	EVERGREEN HUCKLEBERY	1 GAL. CONT.	5'	1%	12
SEEDING	APPLY SEED MIX 1 - UPLAND					
SOIL PREPARATION	SOIL PREPARATION TYPE 2, SEE DETAIL 2 ON SHEET L11					
MULCH	INSTALL 4" DEPTH MULCH AT PLANTING AREA					

PLANTING MIX C: WOODLAND HUMMOCK WETLAND ENHANCEMENT (12,061 SF)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	INSTALL SIZE	SPACING OC	DISTRIBUTION	QUANTITY
TREES	CRATAEGUS DOUGLASII	BLACK HAWTHORN	1 GAL CONT.	10'	10%	14
	FRANGULA PURSHIANA	CASCARA	1 GAL CONT.	10'	10%	14
	MALUS FUSCA	PACIFIC CRABAPPLE	1 GAL CONT.	10'	10%	14
	PICEA SITCHENSIS	SITKA SPRUCE	1 GAL CONT.	10'	35%	49
	THUJA PLICATA	WESTERN REDCEDAR	1 GAL CONT.	10'	35%	49
SHRUBS	AMELANCHIER ALNIFOLIA	SERVICEBERRY	1 GAL. CONT.	5'	10%	42
	CORNUS SERICEA	REDOSIER DOGWOOD	1 GAL. CONT.	5'	24%	100
	LONICERA INVOLUCRATA	TWINBERRY HONEYSUCKLE	1 GAL. CONT.	5'	10%	42
	ROSA PISOCARPA	CLUSTER ROSE	1 GAL. CONT.	5'	23%	96
	RUBUS SPECTABILIS	SALMONBERRY	1 GAL. CONT.	5'	23%	96
	SALIX SCOULERIANA	SCOULER'S WILLOW	1 GAL. CONT.	5'	10%	42
SEEDING	APPLY SEED MIX 1 - UPLAND					
SOIL PREPARATION	SOIL PREPARATION TYPE 2, SEE DETAIL 2 ON SHEET L11					
MULCH	INSTALL 4" DEPTH MULCH AT PLANTING AREA					

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STATE OF WASHINGTON · ALLEN B. ROSS · EXP. 2/19

REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

PLANTING SCHEDULE, 1 OF 3

REFERENCE SHEET NO. L07

SHEET 33 OF 37 SHEETS

2/27/2019 4:46:50 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\L07 PLANTING SCHEDULE, 1 OF 3.DWG

SECTION 34, T27N, R5E, W.M.

PLANTING MIX D: WETLAND ENHANCEMENT (167,454 SF)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	INSTALL SIZE	SPACING OC	DISTRIBUTION	QUANTITY
TREES	FRAXINUS LATIFOLIA	OREGON ASH	1 GAL CONT.	10'	5%	63
	PICEA SITCHENSIS	SITKA SPRUCE	1 GAL CONT.	10'	15%	189
	SALIX HOOKERIANA	HOOKER WILLOW	1 GAL. CONT.	10'	10%	126
	SALIX LASIANDRA	PACIFIC WILLOW	1 GAL. CONT.	10'	10%	126
	SALIX SITCHENSIS	SITKA WILLOW	1 GAL. CONT.	10'	10%	126
	THUJA PLICATA	WESTERN REDCEDAR	1 GAL. CONT.	10'	50%	628
SHRUBS	CORNUS SERICEA	REDOSIER DOGWOOD	1 GAL. CONT.	5'	15%	565
	MYRICA GALE	SWEET GALE	1 GAL. CONT.	5'	1%	38
	PHYSOCARPUS CAPITATUS	PACIFIC NINEBARK	1 GAL. CONT.	5'	13%	490
	RIBES BRACTEOSUM	STINK CURRANT	1 GAL. CONT.	5'	10%	377
	ROSA PISOCARPA	CLUSTER ROSE	1 GAL. CONT.	5'	13%	490
	RUBUS SPECTABILIS	SALMONBERRY	1 GAL. CONT.	5'	13%	490
	SALIX SCOULERIANA	SCOULER'S WILLOW	1 GAL. CONT.	5'	20%	754
	SPIRAEA DOUGLASII	ROSE SPIRAEA	1 GAL. CONT.	5'	2%	75
	SALIX SCOULERIANA	AMERICAN CRANBERRYBUSH	1 GAL. CONT.	5'	13%	490
LIVE POLES AND LIVE STAKES	SALIX HOOKERIANA	HOOKER WILLOW	LIVE POLE	5'	16%	443
	SALIX LASIANDRA	PACIFIC WILLOW	LIVE POLE	5'	16%	443
	SALIX SITCHENSIS	SITKA WILLOW	LIVE POLE	5'	18%	487
	SALIX HOOKERIANA	HOOKER WILLOW	LIVE STAKE	5'	16%	433
	SALIX LASIANDRA	PACIFIC WILLOW	LIVE STAKE	5'	16%	433
	SALIX SITCHENSIS	SITKA WILLOW	LIVE STAKE	5'	18%	487
SEEDING	APPLY SEED MIX 2 - WETLAND					
SOIL PREPARATION	SOIL PREPARATION TYPE 2, EXCEPT AROUND LIVE POLES AND LIVE STAKES. SEE DETAIL 2 ON SHEET L11					
MULCH	INSTALL 4" DEPTH MULCH EXCEPT AROUND LIVE POLES AND LIVE STAKES					

PLANTING MIX E: WETLAND UNDERSTORY ENHANCEMENT (111,210 SF)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	INSTALL SIZE	SPACING OC	DISTRIBUTION	QUANTITY
TREES	PSEUDOTSUGA MENZIESII	DOUGLAS-FIR	1 GAL. CONT.	10'	30%	116
	THUJA PLICATA	WESTERN REDCEDAR	1 GAL. CONT.	10'	40%	154
	TSUGA HETEROPHYLLA	WESTERN HEMLOCK	1 GAL. CONT.	10'	30%	116
SHRUBS	CORNUS SERICEA	REDOSIER DOGWOOD	1 GAL. CONT.	5'	15%	173
	MYRICA GALE	SWEET GALE	1 GAL. CONT.	5'	1%	12
	PHYSOCARPUS CAPITATUS	PACIFIC NINEBARK	1 GAL. CONT.	5'	13%	150
	RIBES BRACTEOSUM	STINK CURRANT	1 GAL. CONT.	5'	10%	116
	ROSA PISOCARPA	CLUSTER ROSE	1 GAL. CONT.	5'	13%	150
	RUBUS SPECTABILIS	SALMONBERRY	1 GAL. CONT.	5'	13%	150
	SALIX SCOULERIANA	SCOULER'S WILLOW	1 GAL. CONT.	5'	20%	231
	VIBURNUM OPULUS AMERICANUM	AMERICAN CRANBERRYBUSH	1 GAL. CONT.	5'	15%	173
SEEDING	APPLY SEED MIX 2 - WETLAND					
SOIL PREPARATION	SOIL PREPARATION TYPE 2, SEE DETAIL 2 ON SHEET L11					
MULCH	INSTALL 4" DEPTH MULCH AT PLANTING AREA					

PLANTING MIX F: WETLAND CREATION/REESTABLISHMENT/REHABILITATION (209,481 SF)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	INSTALL SIZE	SPACING OC	DISTRIBUTION	QUANTITY
TREES	FRAXINUS LATIFOLIA	OREGON ASH	1 GAL CONT.	10'	10%	157
	PICEA SITCHENSIS	SITKA SPRUCE	1 GAL. CONT.	10'	20%	314
	SALIX HOOKERIANA	HOOKER WILLOW	1 GAL. CONT.	10'	10%	157
	SALIX LASIANDRA	PACIFIC WILLOW	1 GAL. CONT.	10'	10%	157
	SALIX SITCHENSIS	SITKA WILLOW	1 GAL. CONT.	10'	10%	157
	THUJA PLICATA	WESTERN REDCEDAR	1 GAL. CONT.	10'	40%	629
SHRUBS	CORNUS SERICEA	REDOSIER DOGWOOD	1 GAL. CONT.	5'	15%	708
	MYRICA GALE	SWEET GALE	1 GAL. CONT.	5'	1%	47
	PHYSOCARPUS CAPITATUS	PACIFIC NINEBARK	1 GAL. CONT.	5'	15%	708
	RIBES BRACTEOSUM	STINK CURRANT	1 GAL. CONT.	5'	10%	472
	ROSA PISOCARPA	CLUSTER ROSE	1 GAL. CONT.	5'	14%	661
	RUBUS SPECTABILIS	SALMONBERRY	1 GAL. CONT.	5'	14%	661
	SALIX SCOULERIANA	SCOULER'S WILLOW	1 GAL. CONT.	5'	15%	708
	SPIRAEA DOUGLASII	ROSE SPIRAEA	1 GAL. CONT.	5'	1%	47
	VIBURNUM OPULUS AMERICANUM	AMERICAN CRANBERRYBUSH	1 GAL. CONT.	5'	15%	708
LIVE POLES AND LIVE STAKES	SALIX HOOKERIANA	HOOKER WILLOW	LIVE POLE	5'	16%	542
	SALIX LASIANDRA	PACIFIC WILLOW	LIVE POLE	5'	16%	542
	SALIX SITCHENSIS	SITKA WILLOW	LIVE POLE	5'	18%	610
	SALIX HOOKERIANA	HOOKER WILLOW	LIVE STAKE	5'	16%	542
	SALIX LASIANDRA	PACIFIC WILLOW	LIVE STAKE	5'	16%	542
	SALIX SITCHENSIS	SITKA WILLOW	LIVE STAKE	5'	18%	610
SEEDING	APPLY SEED MIX 2 - WETLAND					
SOIL PREPARATION	SOIL PREPARATION TYPE 2, EXCEPT AROUND LIVE POLES AND LIVE STAKES, SEE DETAIL 2 ON SHEET L11					
MULCH	INSTALL 4" DEPTH MULCH EXCEPT AROUND LIVE POLES AND LIVE STAKES					

PLANTING MIX G: WETLAND CREATION/REESTABLISHMENT/ENHANCEMENT 6" DEPTH MAX (7,917 SF)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	INSTALL SIZE	SPACING OC	DISTRIBUTION	QUANTITY
GRASSES, RUSHES, & SEDGES	CAREX OBNUPTA	SLOUGH SEDGE	10" TUBE	3'	9%	91
	CAREX STIPATA	SAWBEAK SEDGE	10" TUBE	3'	9%	91
	ELEOCHARIS ACICULARIS	NEEDLE SPIKERUSH	10" TUBE	3'	8%	81
	ELEOCHARIS PALUSTRIS	COMMON SPIKERUSH	10" TUBE	3'	9%	91
	GLYCERIA BOREALIS	SMALL FLOATING MANNAGRASS	10" TUBE	3'	8%	81
	GLYCERIA GRANDIS	AMERICAN MANNAGRASS	10" TUBE	3'	9%	91
	GLYCERIA STRIATA	FOWL MANNAGRASS	10" TUBE	3'	8%	81
	JUNCUS ENSIFOLIUS	SWORDLEAF RUSH	10" TUBE	3'	9%	91
	SAGITTARIA LATIFOLIA	BROADLEAF ARROWHEAD	10" TUBE	3'	8%	81
	SCHOENOPLECTUS ACUTUS	HARDSTEM BULRUSH	10" TUBE	3'	7%	71
	SCIRPUS MICROCARPUS	SMALL FRUITED BULRUSH	10" TUBE	3'	9%	91
	VERONICA AMERICANA	AMERICAN SPEEDWELL	10" TUBE	3'	7%	71
SEEDING	APPLY SEED MIX 2 - WETLAND					
SOIL PREPARATION	INSTALL 3" DEEP LAYER OF COMPOST AND TILL INTO NATIVE SOIL, SEE NOTES SHEET L11					
MULCH	DO NOT MULCH					

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DESIGNED BY: ABG | DRAWN BY: DMS

PRELIMINARY
90% DESIGN

STATE OF WASHINGTON — EXP 21

REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

PLANTING SCHEDULE, 2 OF 3

REFERENCE SHEET NO. L08

SHEET 34 OF 37 SHEETS

2/27/2019 4:47:01 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\L08 PLANTING SCHEDULE, 2 OF 3.DWG

SECTION 34, T27N, R5E, W.M.

PLANTING MIX H: RIPARIAN ENHANCEMENT (9,562 SF)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	INSTALL SIZE	SPACING OC	DISTRIBUTION	QUANTITY
TREES	FRAXINUS LATIFOLIA	OREGON ASH	1 GAL CONT.	10'	20%	22
	PICEA SITCHENSIS	SITKA SPRUCE	1 GAL CONT.	10'	40%	44
	THUJA PLICATA	WESTERN REDCEDAR	1 GAL CONT.	10'	40%	44
SHRUBS	CORNUS SERICEA	REDOSIER DOGWOOD	1 GAL. CONT.	5'	20%	66
	PHYSOCARPUS CAPITATUS	PACIFIC NINEBARK	1 GAL. CONT.	5'	20%	66
	RIBES BRACTEOSUM	STINK CURRANT	1 GAL. CONT.	5'	10%	33
	ROSA GYMNOCARPA	BALDHIP ROSE	1 GAL. CONT.	5'	15%	50
	RUBUS SPECTABILIS	SALMONBERRY	1 GAL. CONT.	5'	15%	50
	SALIX SCOULERIANA	SCOULER'S WILLOW	1 GAL. CONT.	5'	20%	66
SEEDING	APPLY SEED MIX 2 - WETLAND					
SOIL PREPARATION	SOIL PREPARATION TYPE 2, SEE DETAIL 2 ON SHEET L11					
MULCH	INSTALL 4" DEPTH MULCH AT PLANTING AREA					

PLANTING MIX I: FLOODPLAIN WETLAND CREATION (6,481 SF)

SYMBOL	SCIENTIFIC NAME	COMMON NAME	INSTALL SIZE	SPACING OC	DISTRIBUTION	QUANTITY
LIVE POLES AND LIVE STAKES	SALIX HOOKERIANA	HOOKER WILLOW	LIVE POLE	5'	10%	30
	SALIX LASIANDRA	PACIFIC WILLOW	LIVE POLE	5'	15%	45
	SALIX SCOULERIANA	SCOULER'S WILLOW	LIVE POLE	5'	10%	30
	SALIX SITCHENSIS	SITKA WILLOW	LIVE POLE	5'	15%	45
	SALIX HOOKERIANA	HOOKER WILLOW	LIVE STAKE	5'	10%	30
	SALIX LASIANDRA	PACIFIC WILLOW	LIVE STAKE	5'	15%	45
	SALIX SCOULERIANA	SCOULER'S WILLOW	LIVE STAKE	5'	10%	30
	SALIX SITCHENSIS	SITKA WILLOW	LIVE STAKE	5'	15%	45
SEEDING	APPLY SEED MIX 2 - WETLAND					
SOIL PREPARATION	INSTALL 3" DEEP LAYER OF COMPOST AND TILL INTO NATIVE SOIL, SEE NOTES SHEET L11					
MULCH	DO NOT MULCH					

SEED MIX 1 - UPLAND

SCIENTIFIC NAME	COMMON NAME	DISTRIBUTION BY WEIGHT
BROMUS CARINATUS	CALIFORNIA BROME	20%
ELYMUS GLAUCUS	BLUE WILDRYE	25%
FESTUCA RUBRA	RED FESCUE	25%
LUPINUS POLYPHYLLUS	BIGLEAF LUPINE	10%
PRUNELLA VULGARIS	COMMON SELFHEAL	20%

SEED MIX 2 - WETLAND

SCIENTIFIC NAME	COMMON NAME	DISTRIBUTION BY WEIGHT
AGROSTIS EXARATA	SPIKE BENTGRASS	35%
BECKMANNIA SYZIGACHNE	AMERICAN SLOUGHGRASS	10%
DESCHAMPSIA CESPITOSA	TUFTED HAIRGRASS	10%
GLYCERIA OCCIDENTALIS	WESTERN MANNAGRASS	5%
HORDEUM BRACHYANTHERUM	MEADOW BARLEY	40%

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SURVEY NO.:
HORZ. DATUM: LOCAL
VERT. DATUM: NAVD 88
DESIGNED BY: **ABG**
FED. AID PROJ. NO.:
FIELD BOOK(S):
DRAWN BY: **DMS**

PRELIMINARY
90% DESIGN

REVIEWED AND APPROVED FOR CONSTRUCTION
SNOHOMISH COUNTY ENGINEER
DATE APPROVED:

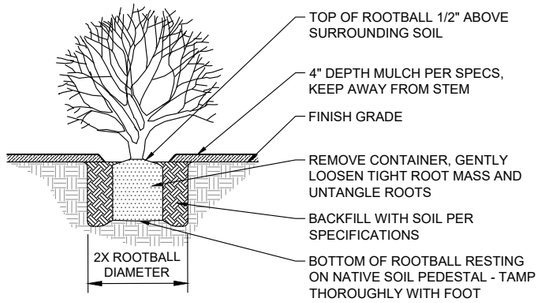
SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS
FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

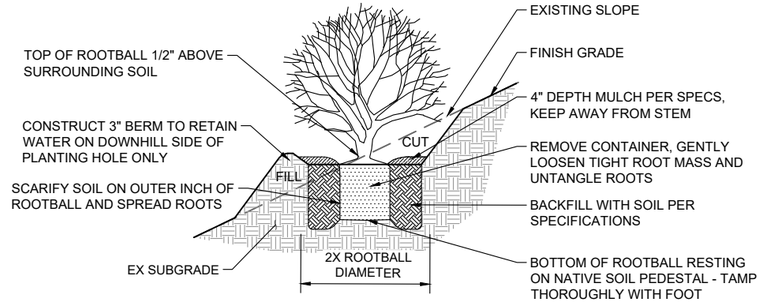
PLANTING SCHEDULE, 3 OF 3

REFERENCE SHEET NO. **L09**
SHEET **35** OF **37** SHEETS

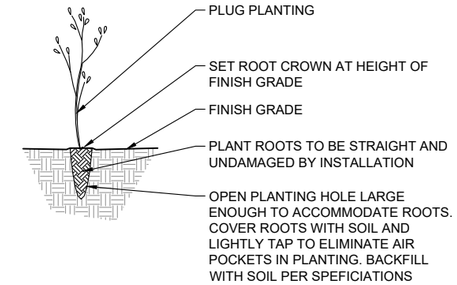
2/27/2019 4:47:12 PM - HANNAH SNOW - \\ESA\ESA\PROJECTS\SEA\14XXXX\D140291.00 SNOHOMISH COUNTY ON-CALL\TASK ORDER 2 - ADVANCE MITIGATION\08_CAD\DWGS\90% DESIGN\L09 PLANTING SCHEDULE, 3 OF 3.DWG



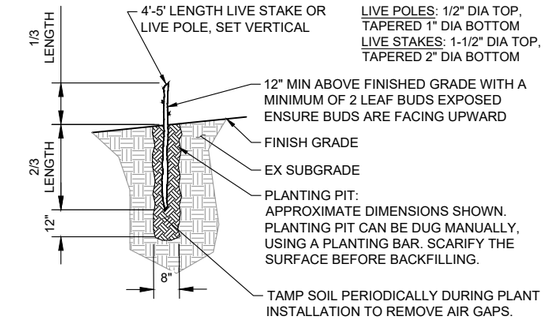
1 / - CONTAINER PLANTING — NOT TO SCALE
DETAIL



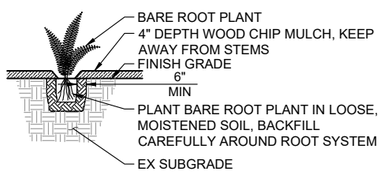
2 / - CONTAINER PLANTING ON SLOPE — NOT TO SCALE
DETAIL



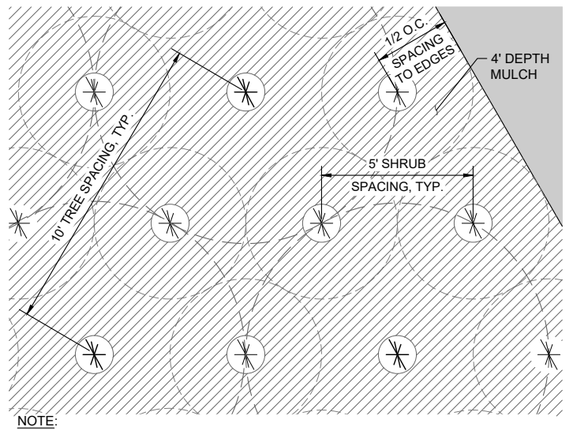
3 / - PLUG PLANTING — NOT TO SCALE
DETAIL



4 / - LIVE POLE AND LIVE STAKE PLANTING — NOT TO SCALE
DETAIL

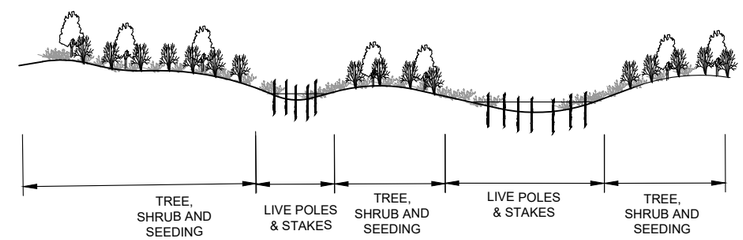


5 / - BARE ROOT PLANTING — NOT TO SCALE
DETAIL



NOTE:
1. MITIGATION PLANTING LAYOUT IS CONCEPTUAL AND INTENDED TO SHOW GROUPINGS OF SIMILAR SPECIES OF PLANTS.
3. GROUP EACH SPECIES IN ODD-NUMBERED CLUSTERS OF 3 TO 9.
4. PLANT LAYOUT AND TRIANGULAR SPACING MAY BE ADJUSTED TO MEET FIELD CONDITIONS WITH THE ACCEPTANCE OF THE ENGINEER.
5. IN BUFFER RESTORATION AREA SURROUND EACH TREE WITH SHRUBS, RETAINING THE 6' O.C. SPACING OF THE SHRUBS AS SHOWN IN THIS DETAIL.

6 / - TREE & SHRUB PLANTING LAYOUT — NOT TO SCALE
DETAIL PLAN



7 / - MOSAIC PLANTING — NOT TO SCALE
SECTION

NOT FOR CONSTRUCTION

DATE	NO.	REVISION	BY
10/12/18			

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UPI NO.:	FED. AID PROJ. NO.:
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PRELIMINARY
90% DESIGN

STATE OF WASHINGTON — LANDSCAPE ARCHITECT — EXP 2/

REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

PLANTING DETAILS

REFERENCE SHEET NO. L10

SHEET 36 OF 37 SHEETS

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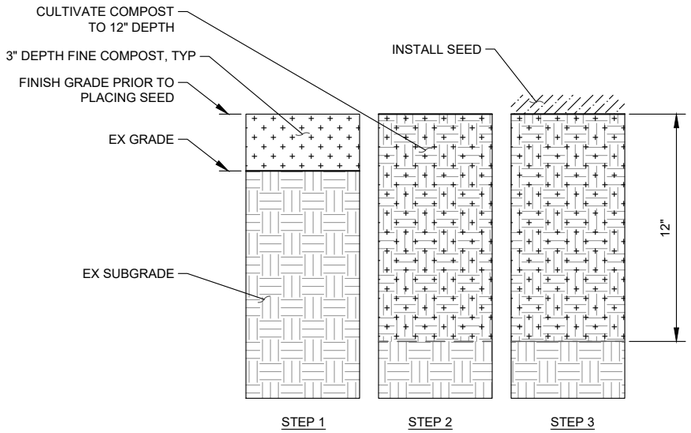


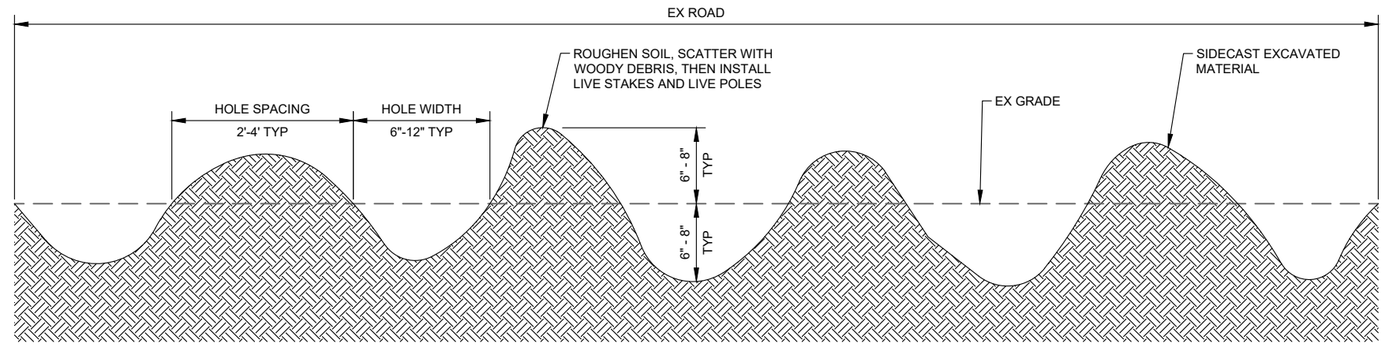
PLANTING AREA PREPARATION SEQUENCE:

STEP 1
PLACE 3" DEPTH FINE COMPOST

STEP 2
INCORPORATE FINE COMPOST TO 12" DEPTH

STEP 3
INSTALL SEED. SEE PLANTING PLAN FOR LOCATIONS.

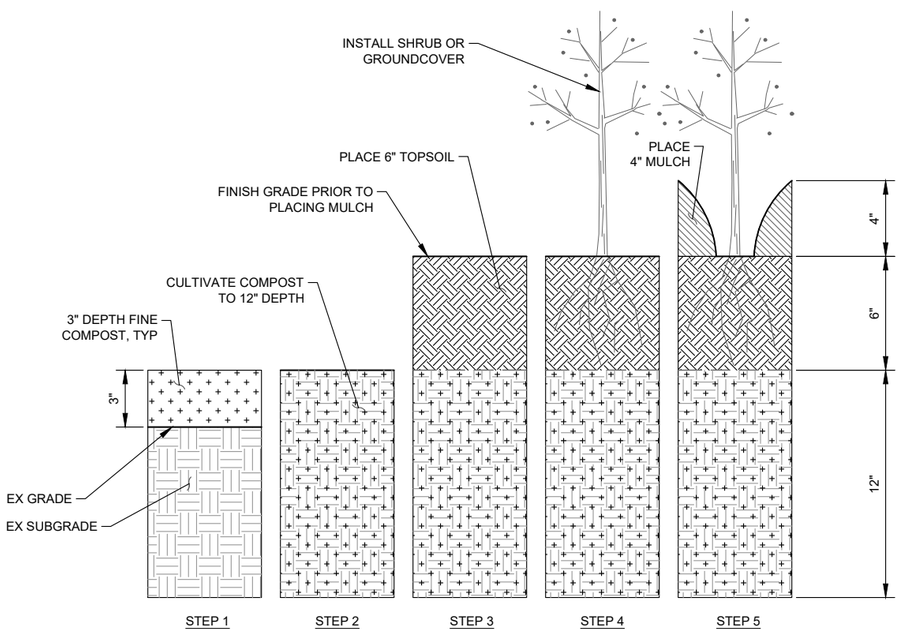
1 / - SOIL PREPARATION TYPE 1 — NOT TO SCALE
DETAIL



3 / C02 ROUGH AND LOOSE SOIL PREPARATION — NOT TO SCALE
DETAIL

NOTES

1. APPLY SOIL PREPARATION TYPE 1 TO ALL SEED AREAS.
2. APPLY SOIL PREPARATION TYPE 2 TO CONTAINER PLANTING AREAS.
3. APPLY ONLY STEPS 1 AND 2 OF SOIL PREPARATION TYPE 2 TO PLANTINGS OF OF LIVE POLES, LIVE STAKES, AND 10" TUBES. NO TOPSOIL OR MULCH ARE TO BE ADDED TO THESE AREAS.
4. PLANTING MIXES B (UPLAND UNDERSTORY ENHANCEMENT) AND E (WETLAND UNDERSTORY ENHANCEMENT) DO NOT REQUIRE ADDITIONAL TOPSOIL. APPLY SOIL PREPARATION TYPE 2 WITHOUT THE TOPSOIL STEP.
5. PLANTING MIX D DOES NOT REQUIRE TOPSOIL OR COMPOST, AS THE EXISTING WETLAND AREA HAS ACCEPTABLE SOIL CONDITIONS.
6. PLANTING MIX F ONLY REQUIRES TOPSOIL AND COMPOST IN WETLAND CREATION AREAS (SHOWN ON SHEET G09) AND 50% OF REMAINING AREA, AS DIRECTED BY THE ENGINEER.
7. LOCATIONS REQUIRING SOIL PREPARATION FOR SOIL DEPLETED AREAS SHALL BE PER DIRECTION OF THE ENGINEER.
8. SEE SPECIFICATIONS FOR TOPSOIL TYPE A REQUIREMENTS IF AVAILABLE SUPPLY OF TOPSOIL TYPE B IS EXHAUSTED.



PLANTING AREA PREPARATION SEQUENCE:

STEP 1
PLACE 3" FINE COMPOST

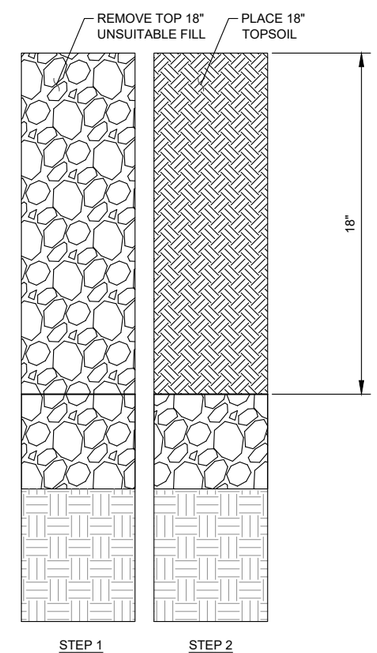
STEP 2
INCORPORATE FINE COMPOST TO 12" DEPTH

STEP 3
PLACE 6" TOPSOIL TYPE B

STEP 4
INSTALL PLANTS. SEE PLANTING PLAN FOR LOCATIONS

STEP 5
INSTALL WOOD CHIP MULCH 4" DEEP WITHIN SHRUB AND GROUNDCOVER PLANTING AREAS, KEEPING MULCH AWAY FROM PLANT STEMS

2 / - SOIL PREPARATION TYPE 2 — NOT TO SCALE
DETAIL



PREPARATION SEQUENCE:

STEP 1
REMOVE TOP 18" OF UNSUITABLE FILL

STEP 2
PLACE 18" OF TOPSOIL TYPE B

4 / - SOIL PREPARATION FOR SOIL DEPLETED AREAS — NOT TO SCALE
DETAIL

NOT FOR CONSTRUCTION

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10/12/18			

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PRELIMINARY

90% DESIGN

STATE OF WASHINGTON — EXP 21

REVIEWED AND APPROVED FOR CONSTRUCTION

SNOHOMISH COUNTY ENGINEER

DATE APPROVED:

SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS

FUNDING NO. _____

LITTLE BEAR CREEK ADVANCED MITIGATION SITE

SOIL PREPARATION DETAILS

REFERENCE SHEET NO. L11

SHEET 37 OF 37 SHEETS

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