



# WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

WENAS WLA – WENAS UNIT  
DURR ROAD GUN RANGE  
KS:R167:19-2

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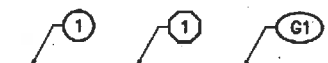
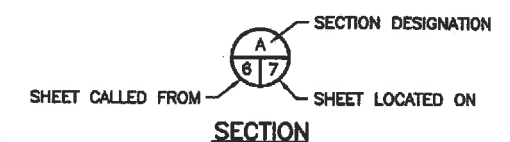
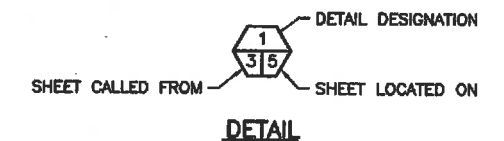
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## ABBREVIATIONS

APPROX	-	APPROXIMATELY
BM	-	BENCH MARK
CL	-	CENTERLINE
CLR	-	CLEARANCE
CONC	-	CONCRETE
CPEP	-	CORRUGATED POLYETHYLENE PIPE
CSBC	-	CRUSHED SURFACE BASE COURSE
CSTC	-	CRUSHED SURFACE TOP COURSE
DIA	-	DIAMETER
ELEV	-	ELEVATION
FG	-	FINISH GRADE
GALV	-	GALVANIZED
ID	-	INSIDE DIAMETER
IE	-	INVERT ELEVATION
MFG	-	MANUFACTURER'S
MISC	-	MISCELLANEOUS
OC	-	ON CENTER
OD	-	OUTSIDE DIAMETER
REQ'D	-	REQUIRED
SEC	-	SECTION
SPEC'S	-	PROJECT SPECIFICATIONS
TYP	-	TYPICAL

## SHEET SYMBOLS



### NOTE REFERENCE

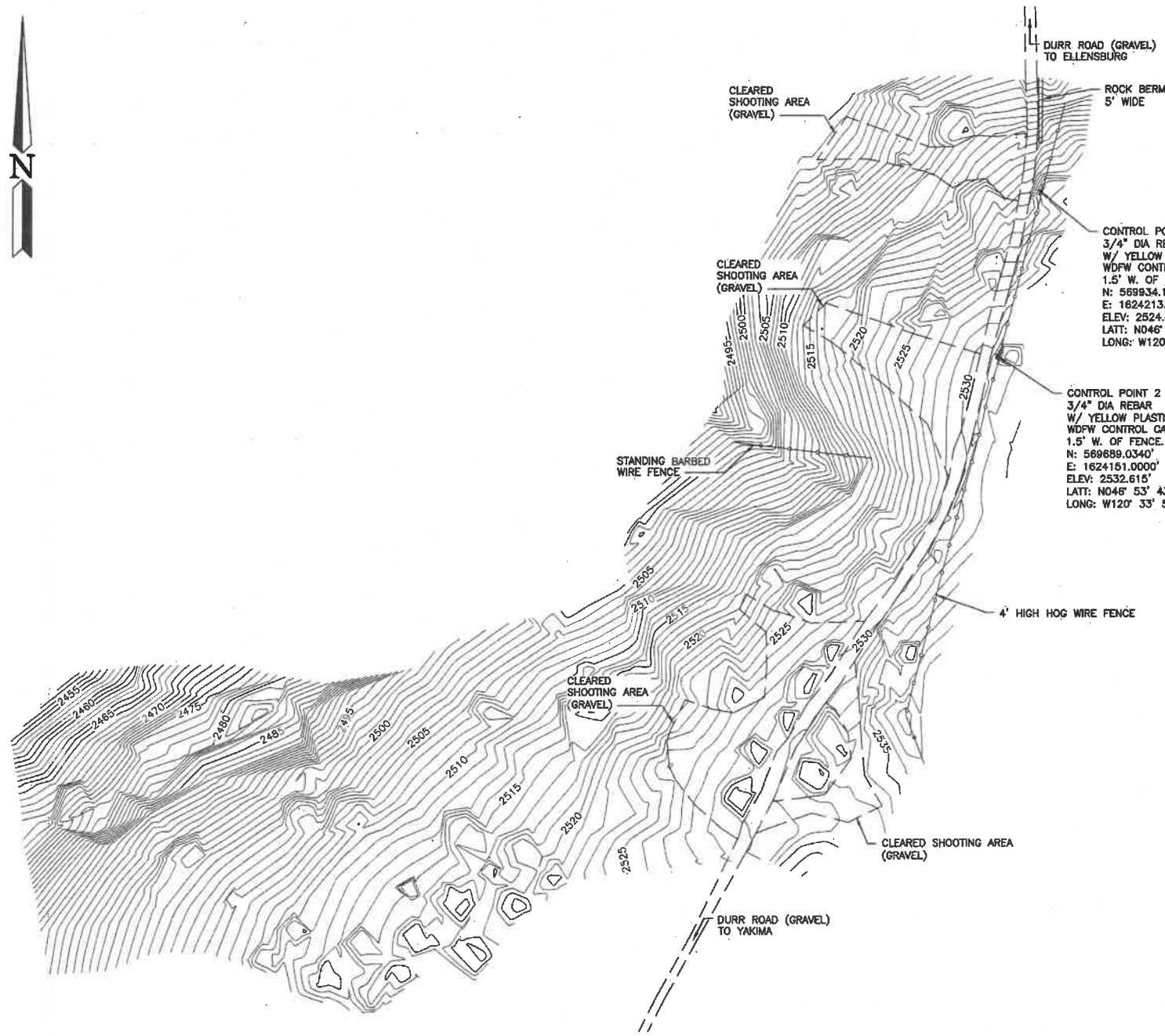
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NOTE, A PART, OR MATERIAL IN A  
SCHEDULE/TABLE

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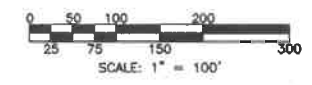
PROJECT NO.  
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SHEET	OF
1	12

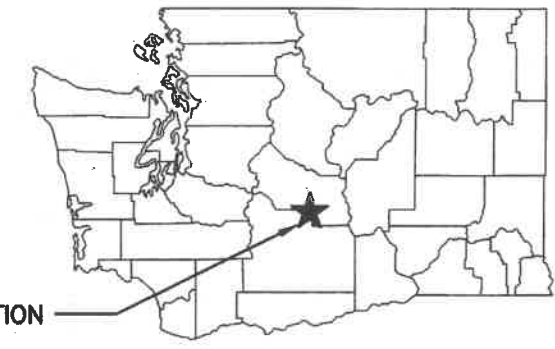


CONTROL POINT 1  
 3/4" DIA REBAR  
 W/ YELLOW PLASTIC  
 WDFW CONTROL CAP  
 1.5' W. OF FENCE  
 N: 569934.1980'  
 E: 1624213.8580'  
 ELEV: 2524.490'  
 LATT: N046° 53' 46.31"  
 LONG: W120° 33' 53.33"

CONTROL POINT 2  
 3/4" DIA REBAR  
 W/ YELLOW PLASTIC  
 WDFW CONTROL CAP  
 1.5' W. OF FENCE  
 N: 569689.0340'  
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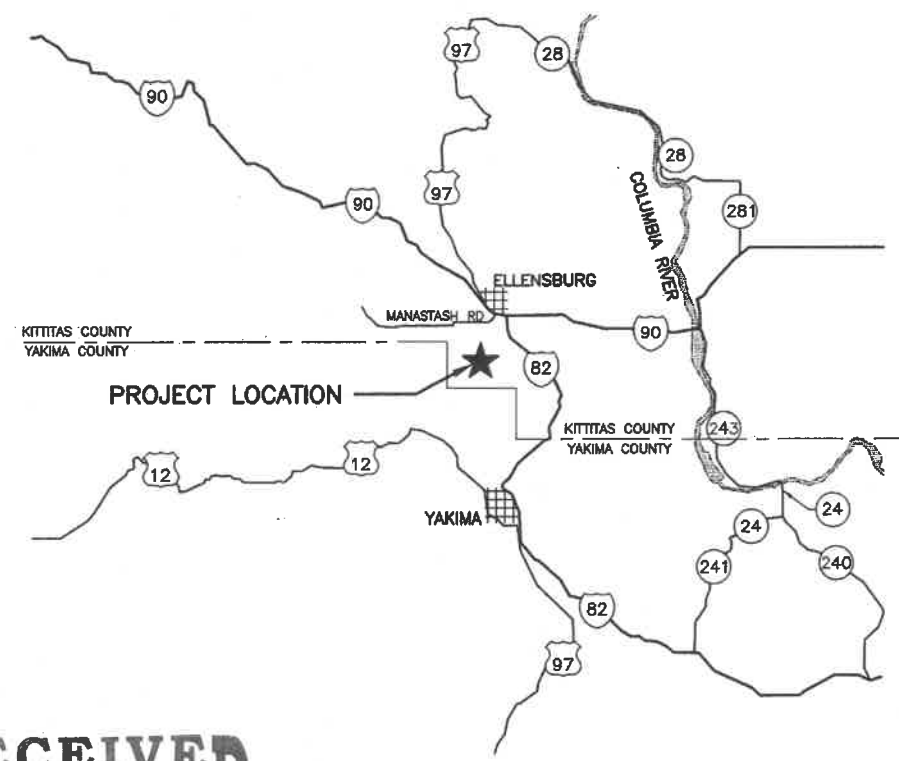


EXISTING SITE PLAN  
SCALE: 1" = 100'



PROJECT LOCATION

STATE MAP  
NOT TO SCALE

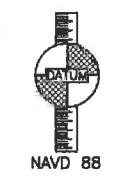


PROJECT LOCATION

VICINITY MAP  
NOT TO SCALE

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**DRIVING DIRECTIONS:**  
 FROM ELLENSBURG  
 HEAD SOUTHEAST ON CANYON RD (0.3 MI)  
 TURN RIGHT ONTO E UMPHANUM RD (5.1 MI)  
 TURN LEFT ONTO DURR RD/OLD DURR RD (2.3 MI)

**PROPERTY INFORMATION:**  
 ADDRESS: DURR ROAD  
 COUNTY: KITTITAS  
 TOWNSHIP: 18 N  
 RANGE: 18 E  
 SECTION: 10

WASHINGTON DEPARTMENT OF  
**FISH & WILDLIFE**



SYM	DATE	REVISION DESCRIPTION	BY
		APPROVED AND RELEASED FOR CONSTRUCTION	
		CHIEF ENGINEER: <i>[Signature]</i>	DATE: 2/18/19
		PROGRAM	DATE: 08/21/2019

0 1" BAR MEASURES ONE INCH ON 24x36 DRAWINGS

WENAS WLA - WENAS UNIT  
DURR ROAD GUN RANGE  
EXISTING SITE PLAN, STATE & VICINITY MAP

PROJECT NO.  
KS:R167:19-2

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**STANDARD PLAN NOTES:**

- ALL CONSTRUCTION TECHNIQUES AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT KITITAS COUNTY AND WASHINGTON STATE DEPARTMENT OF FISH AND WILDLIFE (WDFW) STANDARDS AND AS SHOWN IN THESE PLANS.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS OR DESIGNATED TO BE PROVIDED, INSTALLED, CONSTRUCTED, REMOVED AND RELOCATED UNLESS SPECIFICALLY NOTED OTHERWISE.
- A COPY OF THE APPROVED PLANS MUST BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
- THE CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED FOR WORK THAT ARE NOT PROVIDED BY THE WDFW PRIOR TO START OF CONSTRUCTION.
- PRIOR TO ANY CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL SCHEDULE AND ATTEND A PRE-CONSTRUCTION MEETING WITH THE WDFW, THE COUNTY, AND OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL NOTIFY THE OWNER'S PROFESSIONAL ENGINEERING CONSULTANT AND THE KITITAS COUNTY OF PUBLIC WORKS OF THE PRE-CONSTRUCTION MEETING TIME AND LOCATION.
- ALL WORK OPERATIONS CONDUCTED ON THE PROJECT SITE, INCLUDING BUT NOT LIMITED TO WARMING UP, REPAIR, ARRIVAL AND/OR DEPARTURE OF ANY CONSTRUCTION EQUIPMENT SHALL BE LIMITED TO THE HOURS OF 6AM TO SUNSET EVERY DAY UNLESS OTHERWISE APPROVED BY WDFW AND KITITAS COUNTY.
- ALL SURVEYING AND STAKING OF IMPROVEMENTS SHALL BE APPROVED BY WDFW. CONTRACTOR SHALL COORDINATE AND VERIFY WITH THE DEPARTMENT OF FISH AND WILDLIFE PRIOR TO OBTAINING STAKING SERVICES.
- THE CONTRACTOR SHALL NOTIFY KITITAS VALLEY FIRE AND RESCUE/FIRE DISTRICT 2 (509-933-7235) OF ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.
- ALL LOCATIONS OF EXISTING UTILITIES SHOWN HEREON HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD THEREFORE BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS SHOWN AND TO FURTHER DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN HEREON WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THIS PLAN.
- THE CONTRACTOR SHALL LOCATE AND PROTECT ALL ACTIVE CASTINGS AND UTILITIES DURING CONSTRUCTION AND SHALL CONTACT THE UNDERGROUND UTILITIES LOCATOR SERVICE (1-800-424-5555) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL ADJUST ALL EXISTING MANHOLE RIMS, DRAINAGE STRUCTURE LIDS, VALVE BOXES AND UTILITY ACCESS STRUCTURES TO FINISH GRADE WITHIN AREAS AFFECTED BY THE PROPOSED IMPROVEMENTS.
- THE CONTRACTOR SHALL PROVIDE FOR ALL COMPACTION TESTS REQUIRED BY THE INSPECTOR.
- BACKFILL MATERIAL SHALL MEET THE GRADING NOTES PROVIDED HEREIN AND THE RECOMMENDATIONS PROVIDED BY THE GEOTECHNICAL ENGINEER.
- INSPECTION AND ACCEPTANCE OF ALL WORK WILL BE ACCOMPLISHED BY THE COUNTY INSPECTOR. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE AND SCHEDULE APPROPRIATE INSPECTIONS, ALLOWING PROPER ADVANCE NOTICE. THE INSPECTOR MAY REQUIRE RECONSTRUCTION OF ITEMS THAT DO NOT MEET THE CONTRACT DOCUMENTS OR THAT WERE CONSTRUCTED WITHOUT INSPECTION.
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN BEST MANAGEMENT PRACTICES AS SHOWN HEREIN TO INSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE WATER OF THE STATE. AS CONSTRUCTION PROGRESSES AND UNEXPECTED (SEASONAL) CONDITIONS DICTATE, ADDITIONAL BEST MANAGEMENT PRACTICES MAY BE REQUIRED. THEREFORE, DURING THE COURSE OF CONSTRUCTION IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE CONTRACTOR TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES THAT MAY BE NEEDED TO PROTECT ADJACENT PROPERTIES.
- CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AS NECESSARY THROUGHOUT THE PROJECT. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND KITITAS COUNTY STANDARDS.
- CONTRACTOR SHALL COORDINATE ALL ELECTRICAL WORK WITH PACIFIC POWER.
- CONTRACTOR SHALL NOT MAKE ANY REVISIONS IN THE FIELD WITHOUT PRIOR WRITTEN APPROVAL BY WDFW AND/OR THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR. ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE AT LEAST ONE FLAGGER FOR EACH LANE OF TRAFFIC AFFECTED. ALL SECTIONS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STANDARD SPECIFICATIONS 1-07.23 - TRAFFIC CONTROL, SHALL APPLY.
- ANY TRENCH DEEPER THAN 4 FEET WILL REQUIRE SHORING OR ANOTHER METHOD FOR TRENCH WALL STABILIZATION.

**EARTHWORK NOTES:**

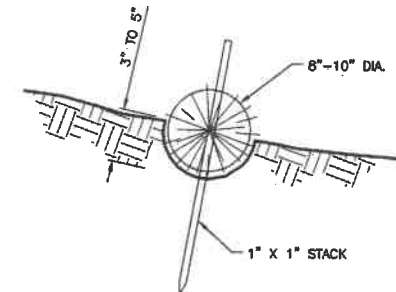
- THE EARTHWORK QUANTITIES SHOWN ARE PROVIDED FOR THE PERMITTING PURPOSES ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CARRY OUT THE CUT/FILL, IMPORT/EXPORT AS NECESSARY TO MEET THE DESIGN GRADES AS SHOWN ON THE PLANS REGARDLESS OF THE ESTIMATED EARTHWORK QUANTITIES AS INDICATED. SIGNIFICANT REVISIONS TO THE QUANTITIES NEED REVIEW BY THE WDFW AND/OR ENGINEER.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INCLUDE ALL MATERIAL AND LABOR REQUIRED WITHIN THE BID PRICE, FOR EARTHWORK CONSTRUCTION, TO CARRY OUT THE CUT/FILL AND/OR IMPORT/EXPORT AS NECESSARY TO MEET THE DESIGN GRADES SHOWN ON THE PLANS. CONTRACTOR IS TO DELIVER TO WDFW THE PROJECT IN A COMPLETE AND OPERATIONAL MANNER. EARTHWORK QUANTITIES SHOWN ON THE PLANS OR REPRESENTED BY THE ENGINEER ARE APPROXIMATE AND ARE FOR PERMITTING PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR ANY INVESTIGATION OR STUDIES THAT ARE REQUIRED BY THE CONTRACTOR TO SATISFY THIS REQUIREMENT. NO ADDITIONAL COMPENSATION SHALL BE PAID FOR SAID CUT/FILL AND/OR IMPORT/EXPORT.

**STANDARD GRADING NOTES:**

- NATIVE ON-SITE SILTY/SANDY SOILS ARE SUITABLE FOR USE AS ENGINEERED FILL. NATIVE ON-SITE SOILS SHALL BE FREE OF SIGNIFICANT ORGANICS, OVERSIZE MATERIAL GREATER THAN 4-INCHES, OR OTHER DELETERIOUS MATTER.
- NATIVE ON-SITE SOIL SHALL BE PLACED IN MAXIMUM 12-INCH LIFTS (LOOSE) AND COMPACTED TO AT LEAST 92 PERCENT RELATIVE COMPACTION AS DETERMINED BY ASTM D1557 OR 95 PERCENT OF ASTM D698 NEAR ITS OPTIMUM MOISTURE CONTENT. COMPACTION OF NATIVE ON-SITE SOILS SHALL BE PERFORMED WITHIN A STRICT RANGE OF  $\pm 2\%$  OF OPTIMUM MOISTURE TO ACHIEVE THE PROPER DEGREE OF COMPACTION.
- NATIVE ON-SITE SOILS ARE ANTICIPATED TO BE READILY CUT WITH CONVENTIONAL STANDARD DUTY GRADING EQUIPMENT.
- NATIVE ON-SITE SOILS MAY BE PRONE TO CAVING IN DEEPER EXCAVATION. CONTRACTOR SHALL ENSURE THAT APPROPRIATE MEASURES AND SAFETY PRECAUTIONS ARE IMPLEMENTED DURING THESE OPERATIONS.
- NATIVE ON-SITE SILTY SOILS ARE SUSCEPTIBLE TO WIND AND EROSION WHEN EXPOSED DURING GRADING OPERATIONS. CONTRACTOR SHALL IMPLEMENT APPROPRIATE BMPs TO CONTROL DUST, EROSION AND SEDIMENT IN RUNOFF.
- PRIOR TO ANY EARTHWORK OPERATIONS, THE UPPER LAYER OF SOIL CONTAINING ORGANIC MATTER AND ROOTS (TOPSOIL) SHALL BE GRUBBED, STRIPPED AND SEPARATED FROM THE SOILS INTENDED FOR REUSE. GENERALLY, THIS DEPTH IS APPROXIMATELY WITHIN TOP 4 TO 6 INCHES.
- SITE GRADING SHOULD BE PERFORMED DURING DRYER PERIODS OF THE YEAR. NO FILL SHALL BE PLACED ON FROZEN SURFACE. UNPROTECTED SUBGRADE SOILS COULD DETERIORATE UNDER CONSTRUCTION TRAFFIC DURING INCLEMENT WEATHER CONDITIONS AND CONSTRUCTION EQUIPMENT SHOULD BE FORBIDDEN FROM TRAVERSING PREPARED SUBGRADE SOILS DURING INCLEMENT WEATHER CONDITIONS (WET WEATHER).
- SOIL CONDITIONS SHALL BE EVALUATED BY IN-PLACE DENSITY TESTING, VISUAL EVALUATION, PROBING, AND PROOF-ROLLING OF THE FILL(S) AND RE-COMPACTED ON-SITE SOIL AS IT IS PREPARED TO CHECK FOR COMPLIANCE WITH RECOMMENDATIONS OF THIS REPORT. A MOISTURE-DENSITY CURVE SHALL BE ESTABLISHED IN ACCORDANCE WITH THE ASTM D1557 METHOD FOR ALL FILL MATERIALS USED AS STRUCTURAL FILL.
- FILL SLOPES SHOULD BE CONSTRUCTED WITH SUITABLE STRUCTURAL FILL SOIL THAT HAS BEEN PROPERLY MOISTURE CONDITIONED. ALL FILL SHALL BE PLACED IN UNIFORM LIFTS, AND COMPACTED TO A MINIMUM 92 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557 OR 95 PERCENT OF ASTM D698 METHOD.
- COMPACTION TESTING SHALL BE DONE IN THE FIELD WITH A NUCLEAR DENSITY GAUGE IN ACCORDANCE WITH ASTM D6938.
- THICKNESS OF THE LOOSE, NON-COMPACTED, LIFT OF STRUCTURAL FILL SHALL NOT EXCEED 8 INCHES FOR HEAVY-DUTY COMPACTORS OR 4 INCHES FOR HAND OPERATED COMPACTORS.
- FILL SLOPES SHOULD BE OVERFILLED AND TRIMMED BACK TO UNIFORMLY COMPACTED MATERIAL. THE FINAL SLOPE SURFACE SHOULD BE TRACK-WALKED OR GRID ROLLED TO IMPROVE THE SLOPE'S RESISTANCE TO EROSION.
- WHERE FILL SLOPES ARE TO BE CONSTRUCTED ON NATURAL SLOPES STEEPER THAN 5H:1V, THE FILL SHOULD BE KEVED AND BENCHED INTO FIRM NATURAL SOIL KEYS FOR ALL SLOPE RECONSTRUCTION GREATER THAN 5 FEET IN HEIGHT SHOULD BE CUT INTO FIRM NATURAL SOIL. THE MINIMUM KEY DIMENSIONS ARE 5 FEET HORIZONTAL AND 1 FEET VERTICAL FROM THE LOWEST ADJACENT SOIL GRADE.
- PROPOSED CUT SLOPE FACE SHALL BE CONSTRUCTED BY KEYING AND BENCHING INTO NATIVE SOILS, ALONG WITH REPLACEMENT WITH ENGINEERED FILL. BENCHING DIMENSIONS INTO NATIVE CUT SLOPES SHALL BE A MINIMUM 4 FEET HORIZONTAL AND MAXIMUM 2 FEET VERTICAL FROM THE LOWEST ADJACENT SOIL GRADE. THE EXPOSED NATIVE SURFACE OF THE OVERCUT BENCH SHOULD BE SCARIFIED, MOISTURE CONDITIONED, AND RECOMPACTED TO A DENSE AND NON-YIELDING SURFACE PRIOR TO REPLACEMENT WITH ENGINEERED FILL. THE RECONSTRUCTED CUT SLOPE FACES SHALL BE OVERBUILT AND CUT BACK TO GRADE, EXPOSING THE FIRM AND COMPACTED SURFACE.
- BASED ON THE GRADATION OF THE SOILS PROPOSED FOR CUT GRADING, WE ANTICIPATE THE COMPOSITE STOCKPILE OF CUT SOILS TO CONTAIN APPROXIMATELY 50 TO 65% FINES (PASSING NO. 200 SIEVE). THESE SOILS WILL BE ADEQUATE FOR PROVIDING THE 3' THICK BULLET RICOCHET IMPACT PROTECTION LAYER.
- IMPORTED SOILS, IF NECESSARY, SHALL CONSIST OF WELL-GRADED, AGGREGATE MATERIAL MEETING THE GRADING AND QUALITY REQUIREMENTS OF 2018 WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STANDARD SPECIFICATIONS. SOILS USED FOR CONSTRUCTION OF EARTHEN BERMS SHALL CONFORM WITH WSDOT SPEC. SECTION 9-03.14(1) (GRAVEL BORROW).
- ALL EXCESS SOIL SHALL BE SPREAD ON-SITE AS SHOWN IN THESE PLANS. NO EXPORT AND DISPOSAL OF SOIL IS ANTICIPATED. SOILS MAY BE MOVED TO A WDFW SITE LESS THAN 1 MILE AWAY FROM THE PROJECT SITE AS DIRECTED BY WDFW.

**DISCREPANCIES:**

IF THERE ARE ANY DISCREPANCIES BETWEEN DIMENSIONS IN DRAWINGS AND EXISTING CONDITIONS WHICH WILL AFFECT THE WORK, THE CONTRACTOR SHALL BRING SUCH DISCREPANCIES TO THE ATTENTION OF THE ENGINEER FOR ADJUSTMENT BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER FITTING OF ALL WORK AND FOR THE COORDINATION OF ALL TRADES, SUBCONTRACTORS, AND PERSONS ENGAGED UPON THIS CONTRACT.



**STRAW WATTLE DETAIL**

NOT TO SCALE

**CONSTRUCTION SPECIFICATIONS:**

- PREPARE THE SLOPE BEFORE THE WATTLING PROCEDURE IS STARTED.
- SHALLOW GULLIES SHOULD BE SMOOTHED AS WORK PROGRESSES.
- DIG SMALL TRENCHES ACROSS THE SLOPE ON CONTOUR, TO PLACE ROLLS IN. THE TRENCH SHOULD BE DEEP ENOUGH TO ACCOMMODATE HALF THE THICKNESS OF THE ROLL. WHEN THE SOIL IS LOOSE AND UNCOMPACTED, THE TRENCH SHOULD BE DEEP ENOUGH TO BURY THE ROLL 2/3 OF ITS THICKNESS BECAUSE THE GROUND WILL SETTLE.
- IT IS CRITICAL THAT ROLLS ARE INSTALLED PERPENDICULAR TO WATER MOVEMENT, PARALLEL TO THE SLOPE CONTOUR.
- START BUILDING TRENCHES AND INSTALL ROLLS FROM THE BOTTOM OF THE SLOPE AND WORK UP.
- CONSTRUCT TRENCHES AT CONTOUR INTERVALS OF 3-12 FEET APART DEPENDING ON STEEPNESS OF SLOPE. THE STEEPER THE SLOPE, THE CLOSER TOGETHER THE TRENCHES. 1:1=10' 2:1=20' 3:1=30' 4:1=40'
- LAY THE ROLL ALONG THE TRENCHES FITTING IT SNUGLY AGAINST THE SOIL. MAKE SURE NO GAPS EXIST BETWEEN THE SOIL AND THE STRAW WATTLE.
- USE A STRAIGHT BAR TO DRIVE HOLES THROUGH THE WATTLE AND INTO THE SOIL FOR THE WILLOW OR WOODEN STAKES.
- DRIVE THE STAKE THROUGH PREPARED HOLE INTO SOIL. LEAVE ONLY 1 OR 2 INCHES OF STAKE EXPOSED ABOVE ROLL.
- IF USING WILLOW STAKES REFER TO LIVE STAKING BEST MANAGEMENT PRACTICES.
- INSTALL STAKES AT LEAST EVERY 4 FEET APART THROUGH THE WATTLE. ADDITIONAL STAKES MAY BE DRIVEN ON THE DOWNSLOPE SIDE OF THE TRENCHES ON HIGHLY EROSION OR VERY STEEP SLOPES.
- INSPECT THE STRAW ROLLS AND THE SLOPES AFTER SIGNIFICANT STORMS. MAKE SURE THE ROLLS ARE IN CONTACT WITH THE SOIL.
- REPAIR ANY RILLS OR GULLYS PROMPTLY.
- RESEED OR REPLANT VEGETATION IF NECESSARY UNTIL THE SLOPE IS STABILIZED.

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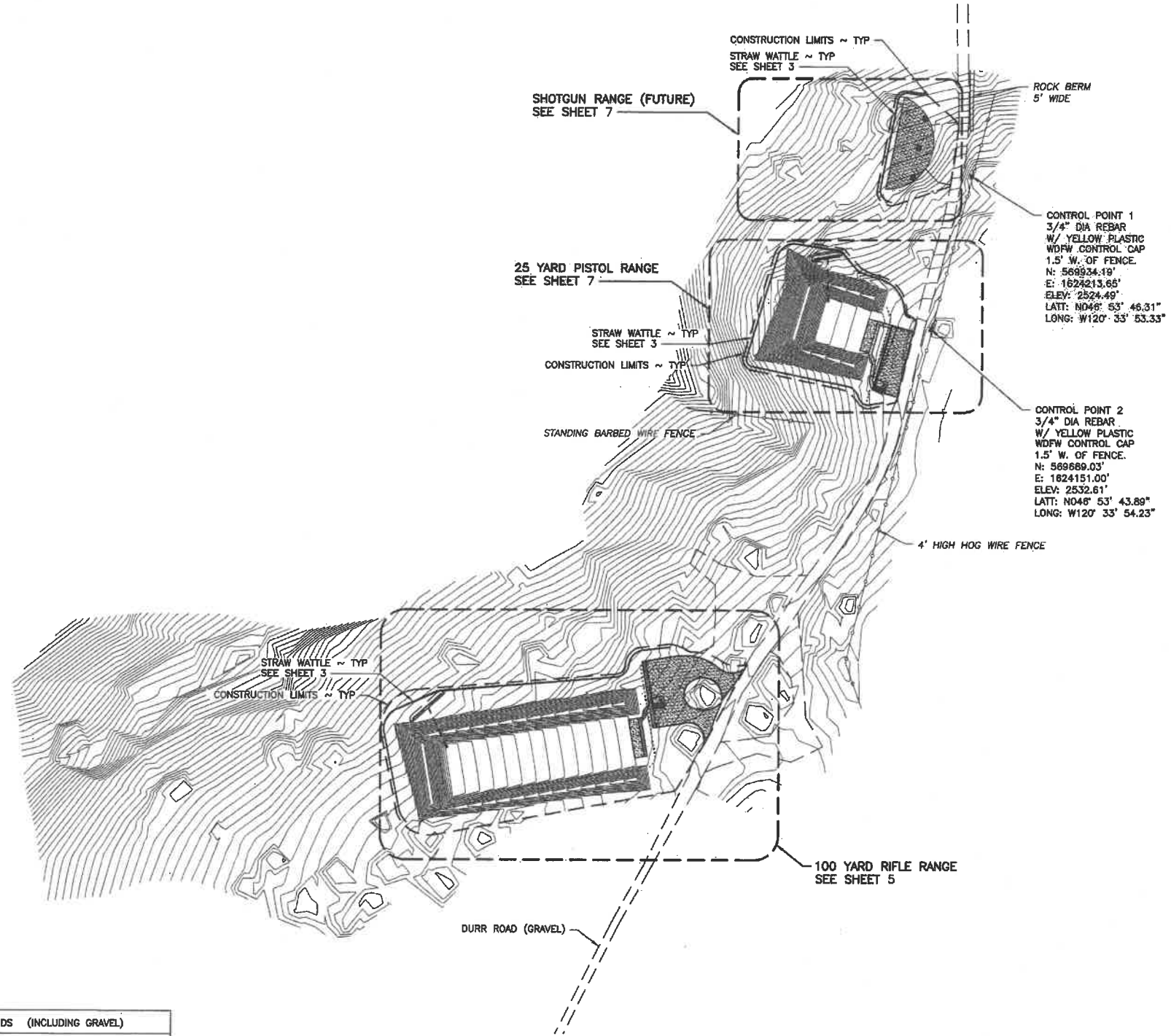


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APPROVED AND RELEASED FOR CONSTRUCTION			
CHIEF ENGINEER		<i>[Signature]</i>	DATE: 2/14/19
PROGRAM			DATE: 08/21/2019

0 1" BAR MEASURES ONE INCH ON 24x36 DRAWINGS	
DESIGNED BY J. HANSEN CHECKED BY D. SMITH DRAWN BY J. LONG DATE 08/21/2019	

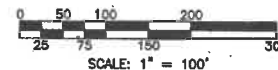
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 GENERAL NOTES &  
 EROSION CONTROL DETAIL

PROJECT NO. KS:R167:19-2	
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GRAVEL FILL DATA IN CUBIC YARDS		
SITE	CUT	FILL
PARKING LOTS 8" CSBC	266.64	266.64
GRAVEL PATH 4" CSBC	19.87	19.87
SHOTGUN RANGE 2" CSBC (PHASE 2)	43.43	43.43
TOTAL:	329.74	329.74

CUT AND FILL DATA IN CUBIC YARDS (INCLUDING GRAVEL)				
SITE	CUT	FILL	NET	LAND DISTURBANCE
OVERALL	2403.76	12,380.34	9976.58 (FILL)	183,646.13 SQ. FT. = 4.21 ACRES
PHASE 1	1749.74	6265.38	4515.64 (FILL)	143,116.66 SQ. FT. = 3.28 ACRES
PHASE 2 25 YD BERMS	11.91	1652.32	1640.40 (FILL)	10,246.75 SQ. FT. = 0.23 ACRES
PHASE 2 100 YD BERMS	139.29	4456.53	4319.25 (FILL)	30,282.72 SQ. FT. = 0.69 ACRES
PHASE 2 SHOTGUN	502.82	4.11	498.71 (CUT)	17,277.39 SQ. FT. = 0.39 ACRES



PROPOSED SITE PLAN  
SCALE: 1" = 100'

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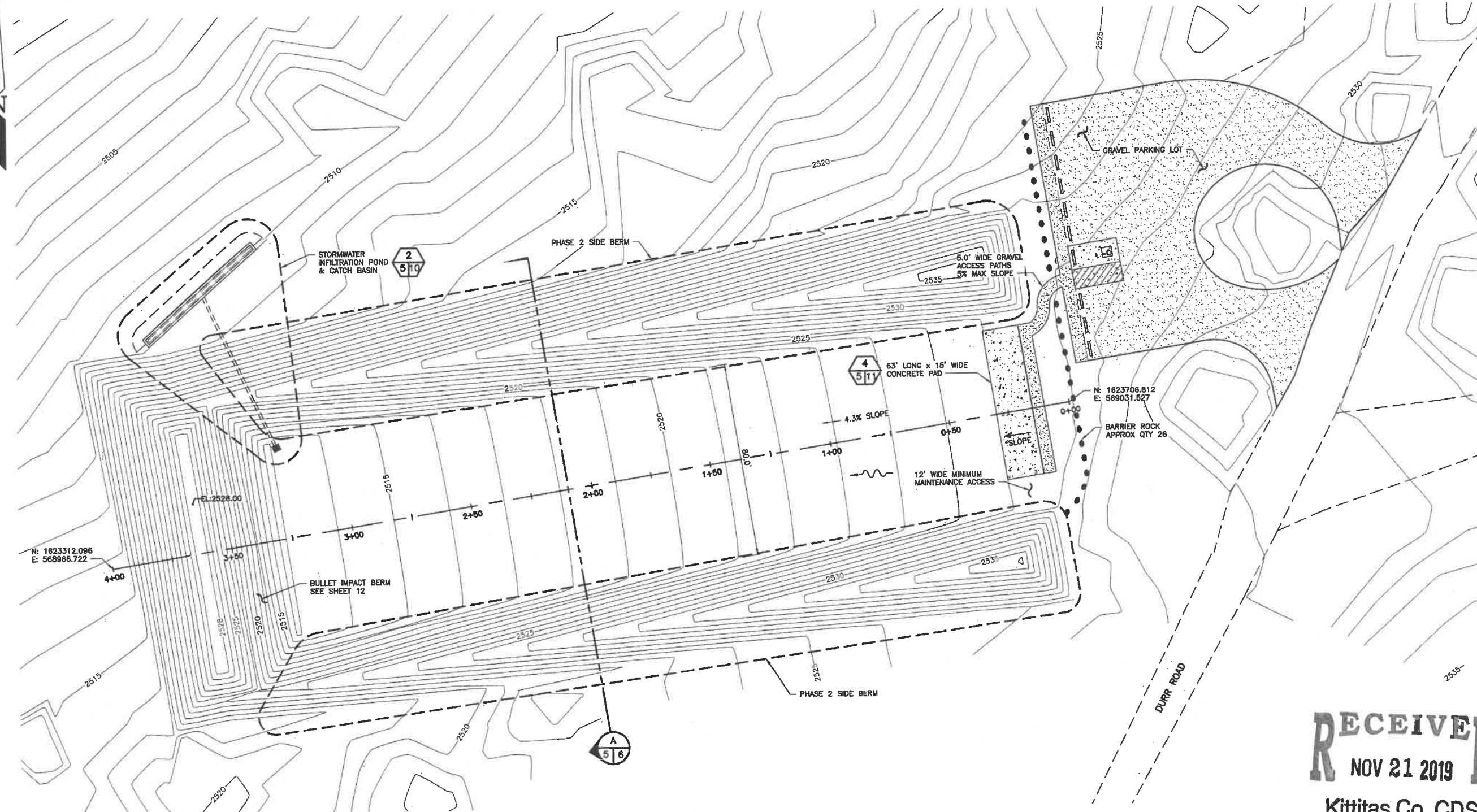
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DESIGNED BY J. HANSEN  
CHECKED BY D. SMITH  
DRAWN BY J. LONG  
DATE 08/21/2019

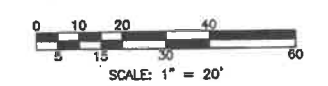
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OVERALL SITE PLAN

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SHEET OF  
4 12



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**100 YARD RIFLE RANGE SITE PLAN**  
 SCALE: 1" = 20'  
 NOTE: SEE SHEET 9 FOR PARKING AND ACCESS GRADING

**LEGEND:**

	SLOPE DIRECTION
	FLOW DIRECTION

WASHINGTON DEPARTMENT OF  
**FISH & WILDLIFE**

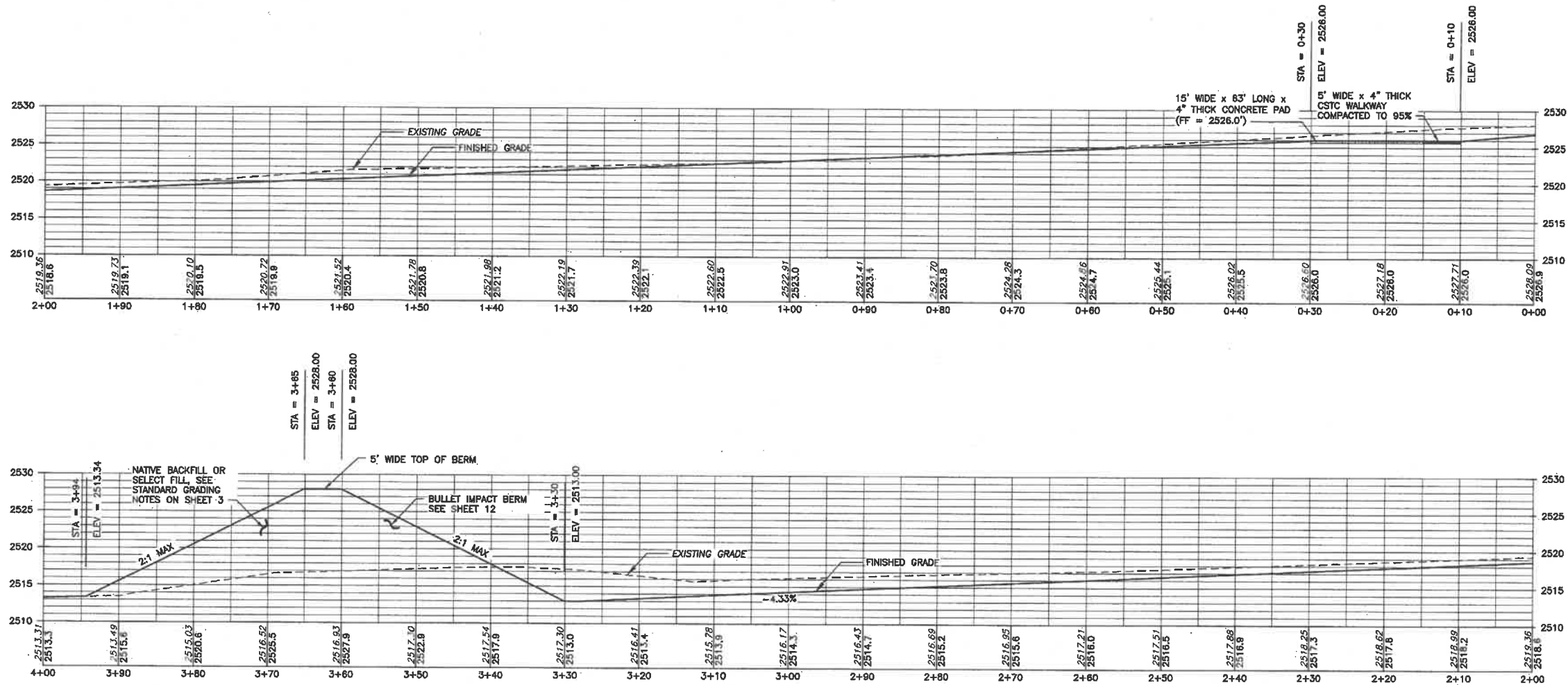


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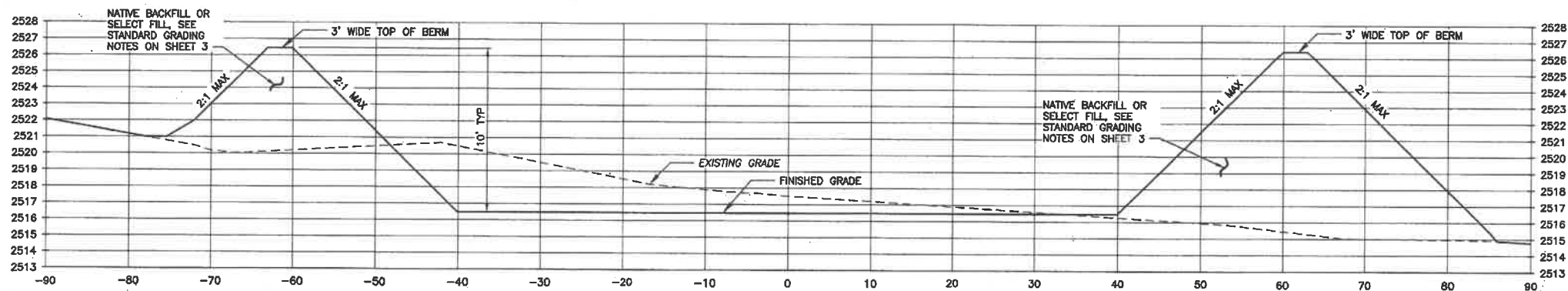
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WENAS WLA - WENAS UNIT  
 DURR ROAD GUN RANGE  
 100 YARD RIFLE RANGE  
 SITE PLAN

PROJECT NO. KS:R167:19-2	
SHEET 5	OF 12



**100 YARD RIFLE RANGE PROFILE**  
SCALE: 1" = 8'



**100 YARD RIFLE RANGE SECTION**  
SCALE: HOR 1" = 8', VER 1" = 4'

A  
5/6

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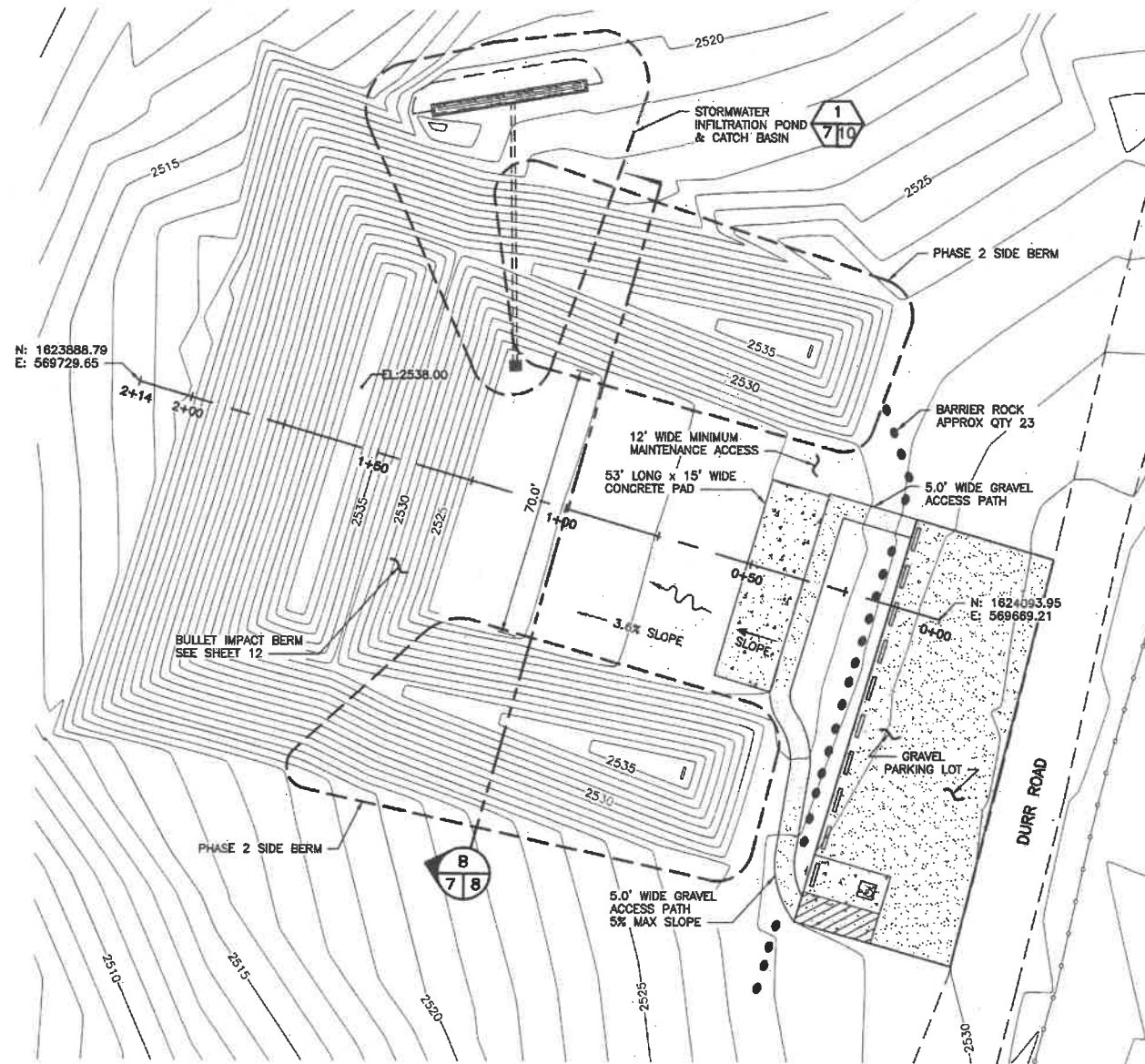
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		CHEF ENGINEER	
		PROGRAM	

DESIGNED BY J. HANSEN  
CHECKED BY D. SMITH  
DRAWN BY J. LONG  
DATE 08/21/2019

0 1"  
BAR MEASURES  
ONE INCH ON  
24x36 DRAWINGS

WENAS WLA - WENAS UNIT  
DURR ROAD GUN RANGE  
100 YARD RIFLE RANGE  
PROFILE & SECTION

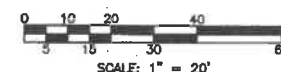
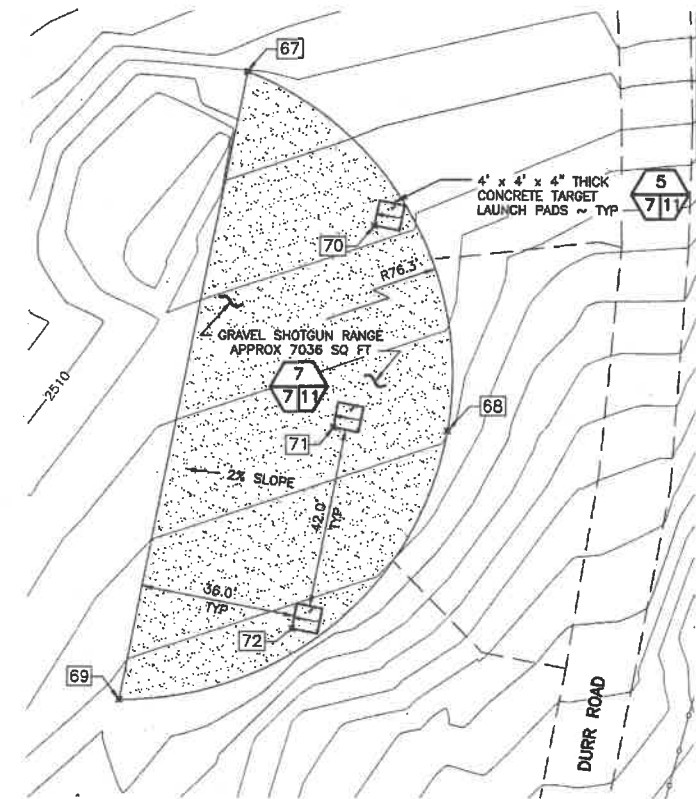
PROJECT NO. KS:R167:19-2	
SHEET 6	OF 12



**25 YARD PISTOL RANGE SITE PLAN**

SCALE: 1" = 20'

NOTE: SEE SHEET 9 FOR PARKING AND ACCESS GRADING



**SHOTGUN RANGE SITE & GRADING PLAN**

SCALE: 1" = 20'

SHOTGUN POINT DATA				
POINT #	EASTING	NORTHING	ELEVATION	DESCRIPTION
67	1624105.22	570080.29	2509.09	BEGIN CURVE
68	1624152.29	569976.34	2515.66	MID CURVE
69	1624076.25	569913.11	2514.34	END CURVE
70	1624134.91	570024.40	2512.23	SW PAD CORNER
71	1624125.61	569977.11	2514.44	SW PAD CORNER
72	1624116.31	569929.68	2518.03	SW PAD CORNER

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**LEGEND:**  
 SLOPE DIRECTION  
 FLOW DIRECTION

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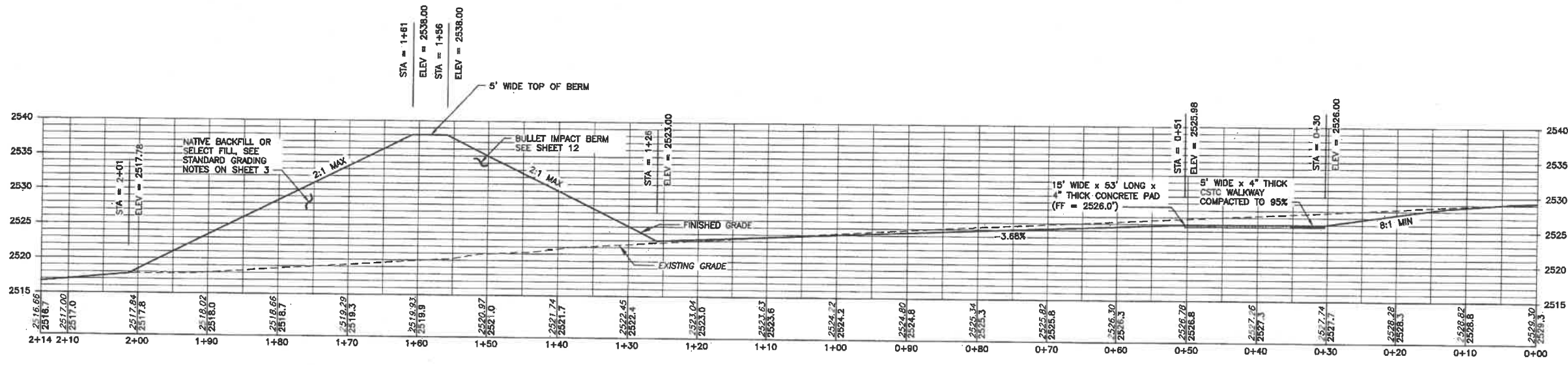
SYM	DATE	REVISION DESCRIPTION	BY
APPROVED AND RELEASED FOR CONSTRUCTION			
CHIEF ENGINEER			
PROGRAM			

DESIGNED BY J. HANSEN  
 CHECKED BY D. SMITH  
 DRAWN BY J. LONG  
 DATE 08/21/2019

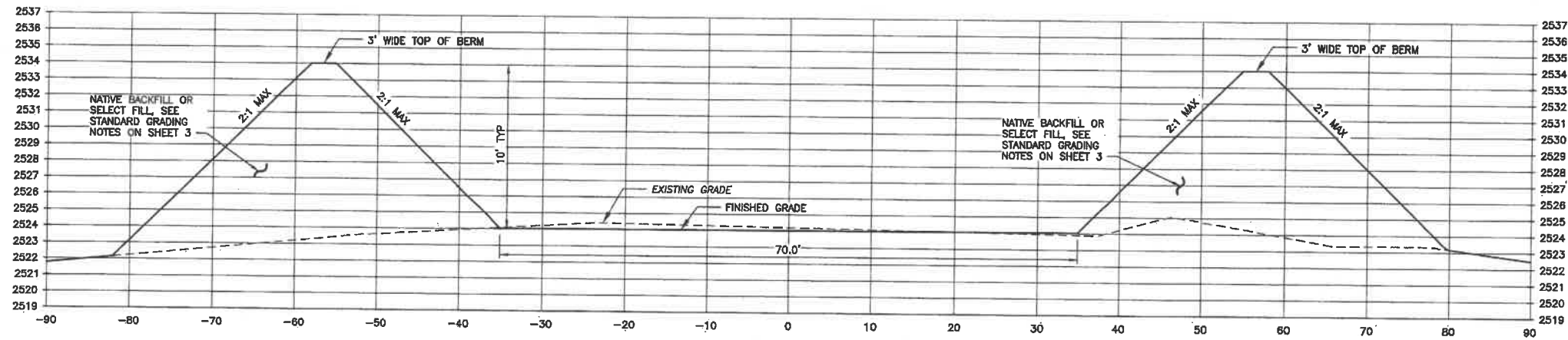
WENAS WLA - WENAS UNIT  
**DURR ROAD GUN RANGE**  
 25 YARD PISTOL RANGE PLAN &  
 SHOTGUN RANGE SITE & GRADING PLAN

PROJECT NO.  
KS:R167:19-2

SHEET	OF
7	12



**25 YARD PISTOL RANGE PROFILE**  
SCALE: 1" = 8'



**25 YARD PISTOL RANGE SECTION**  
SCALE: HOR 1" = 8', VER 1" = 4'

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CHIEF ENGINEER	<i>D. Smith</i>	DATE: 08/21/2019	
PROGRAM		DATE: 08/21/2019	

0 ——— 1"  
BAR MEASURES  
ONE INCH ON  
24x36 DRAWINGS

DESIGNED BY J. HANSEN  
CHECKED BY D. SMITH  
DRAWN BY J. LONG  
DATE 08/21/2019

WENAS WLA - WENAS UNIT  
DURR ROAD GUN RANGE  
25 YARD PISTOL RANGE  
PROFILE & SECTION

PROJECT NO.  
KS:R167:19-2

SHEET OF  
8 12



**NOTE:** INSTALL 3 - 4 MAN BARRIER ROCK WSDOT 9-13.7(1) 4'-0" MAX SPACING BURIED 1/3 DEPTH AND PLACED AS SHOWN IN DRAWING.

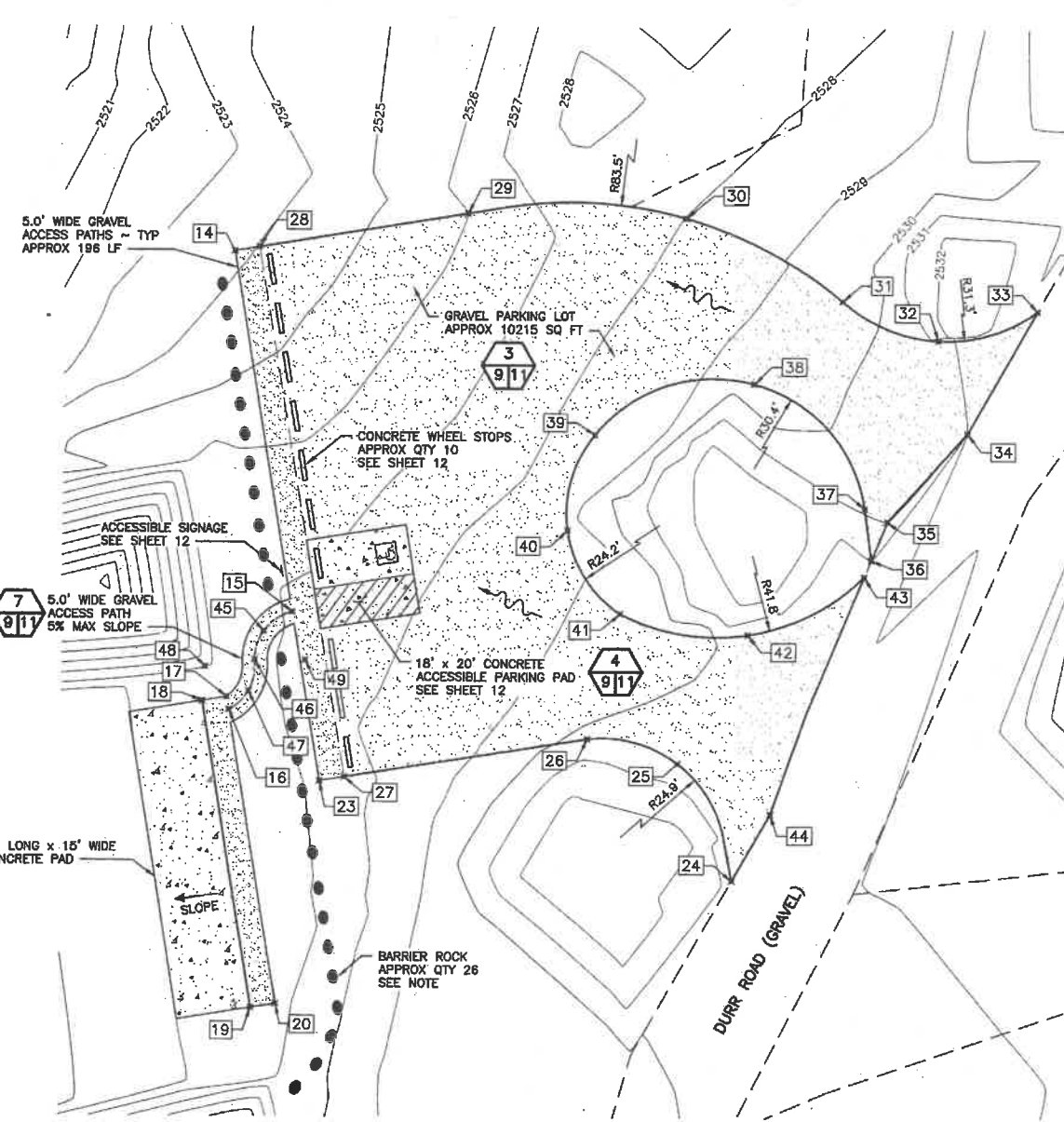
**100 YARD RANGE POINT DATA**

POINT #	EASTING	NORTHING	ELEVATION	DESCRIPTION
14	1623692.07	569154.16	2524.40	FG PATH CORNER
15	1623704.09	569081.60	2526.00	FG PATH CORNER
16	1623691.58	569061.86	2526.00	FG PATH CORNER
17	1623691.16	569064.41	2526.49	FG PATH CORNER
18	1623686.23	569063.60	2526.00	FG PATH CORNER
19	1623696.37	569001.93	2528.00	FG PATH CORNER
20	1623701.31	569002.74	2528.02	FG PATH CORNER
23	1623708.71	569047.61	2528.47	FG PATH CORNER
24	1623792.44	569027.83	2530.83	FG BEGIN CURVE
25	1623781.52	569051.33	2530.37	FG MID CURVE
26	1623763.30	569056.24	2530.41	FG END CURVE
27	1623714.64	569048.43	2528.46	FG CORNER
28	1623697.01	569154.98	2524.40	FG CORNER
29	1623738.42	569161.83	2526.00	FG BEGIN CURVE
30	1623782.31	569161.06	2528.01	FG MID CURVE
31	1623813.49	569144.50	2529.70	FG END CURVE
32	1623832.72	569136.69	2530.76	FG MID CURVE
33	1623852.61	569142.60	2531.50	FG CORNER
34	1623838.71	569117.98	2531.00	FG RD EDGE
35	1623822.65	569100.16	2531.00	FG RD EDGE
36	1623818.68	569092.38	2531.00	FG CORNER
37	1623818.29	569102.74	2530.84	FG BEGIN CURVE
38	1623796.12	569127.78	2529.47	FG MID CURVE
39	1623764.34	569117.35	2528.36	FG END CURVE
40	1623758.94	569098.17	2528.75	FG MID CURVE
41	1623769.73	569081.42	2528.27	FG END CURVE
42	1623795.25	569077.32	2530.27	FG MID CURVE
43	1623818.31	569089.00	2530.99	FG CORNER
44	1623800.01	569041.25	2530.83	FG RD EDGE
45	1623898.48	569077.61	2528.86	FG MID CURVE
46	1623896.71	569071.93	2528.61	FG END CURVE
47	1623695.48	569085.61	2526.41	FG MID CURVE
48	1623686.74	569070.51	2526.88	FG PATH CL R10.0'
49	1623706.73	569071.93	2527.27	FG PATH CL R10.0'

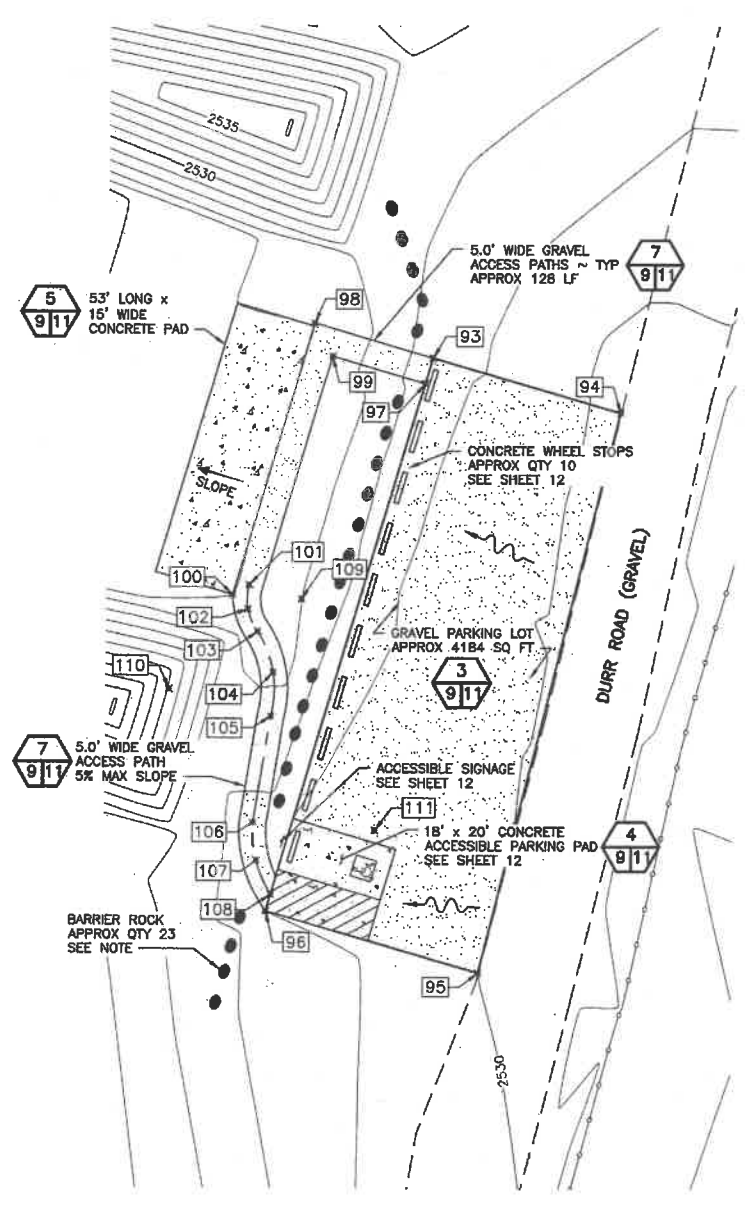
**25 YARD RANGE POINT DATA**

POINT #	EASTING	NORTHING	ELEVATION	DESCRIPTION
93	1624088.03	569695.07	2528.50	FG CORNER
94	1624122.89	569684.88	2530.30	FG CORNER
95	1624097.25	569579.95	2529.90	FG CORNER
96	1624057.66	569591.36	2528.99	FG CORNER
97	1624086.62	569690.27	2528.50	FG PATH CORNER
98	1624065.95	569701.52	2526.00	FG PATH CORNER
99	1624069.35	569695.33	2526.00	FG PATH CORNER
100	1624051.04	569650.58	2526.00	FG PATH CORNER
101	1624054.07	569652.40	2526.00	FG PATH CL BEGIN CURVE
102	1624053.90	569647.87	2528.20	FG PATH CL MID CURVE
103	1624056.72	569843.71	2528.20	FG PATH CL END CURVE
104	1624058.71	569636.07	2528.20	FG PATH CL MID CURVE
105	1624058.33	569827.68	2528.20	FG PATH CL END CURVE
106	1624055.13	569607.90	2528.20	FG PATH CL BEGIN CURVE
107	1624055.80	569600.90	2528.20	FG PATH CL MID CURVE
108	1624058.56	569594.44	2528.20	FG PATH CL END CURVE
109	1624063.91	569848.77	2526.98	FG PATH CL R10.2'
110	1624039.29	569632.87	2531.65	FG PATH CL R19.7'
111	1624077.92	569606.55	2529.29	FG PATH CL R22.8'

**LEGEND:**  
 SLOPE DIRECTION  
 FLOW DIRECTION



**100 YARD RIFLE RANGE PARKING & ACCESS GRADING PLAN**  
 SCALE: 1" = 16'



**25 YARD PISTOL RANGE PARKING & ACCESS GRADING PLAN**  
 SCALE: 1" = 16'



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SYM	DATE	REVISION DESCRIPTION	BY
		APPROVED AND RELEASED FOR CONSTRUCTION	
CHIEF ENGINEER			DATE: 2/18/19
PROGRAM			DATE: 08/21/2019

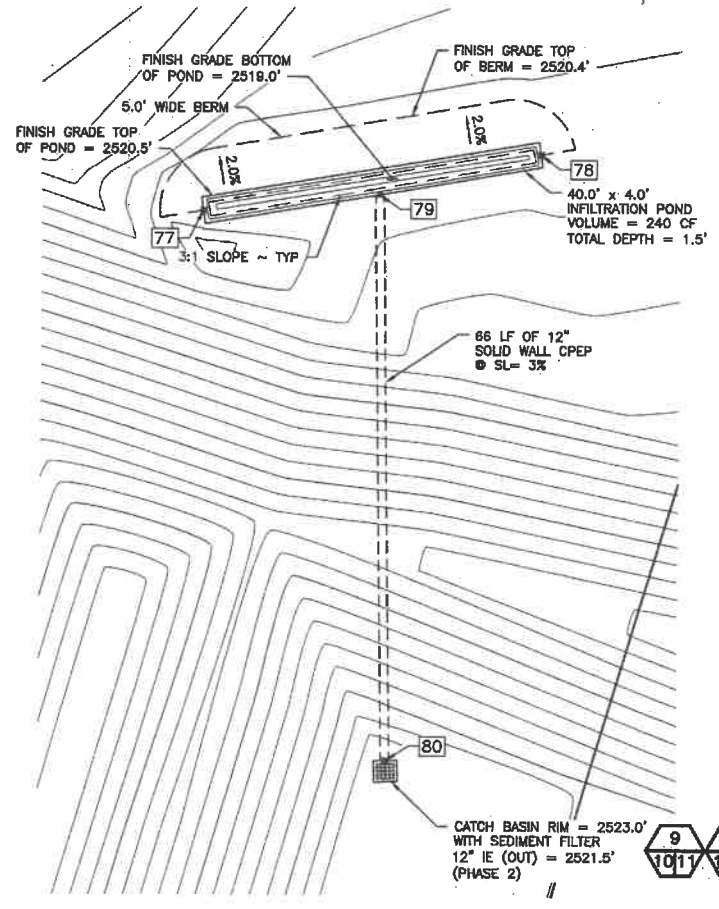
0" = 1"  
 BAR MEASURES ONE INCH ON 24x36 DRAWINGS

WENAS WLA - WENAS UNIT  
**DURR ROAD GUN RANGE**  
 25 & 100 YARD RANGES  
 PARKING & ACCESS GRADING PLAN

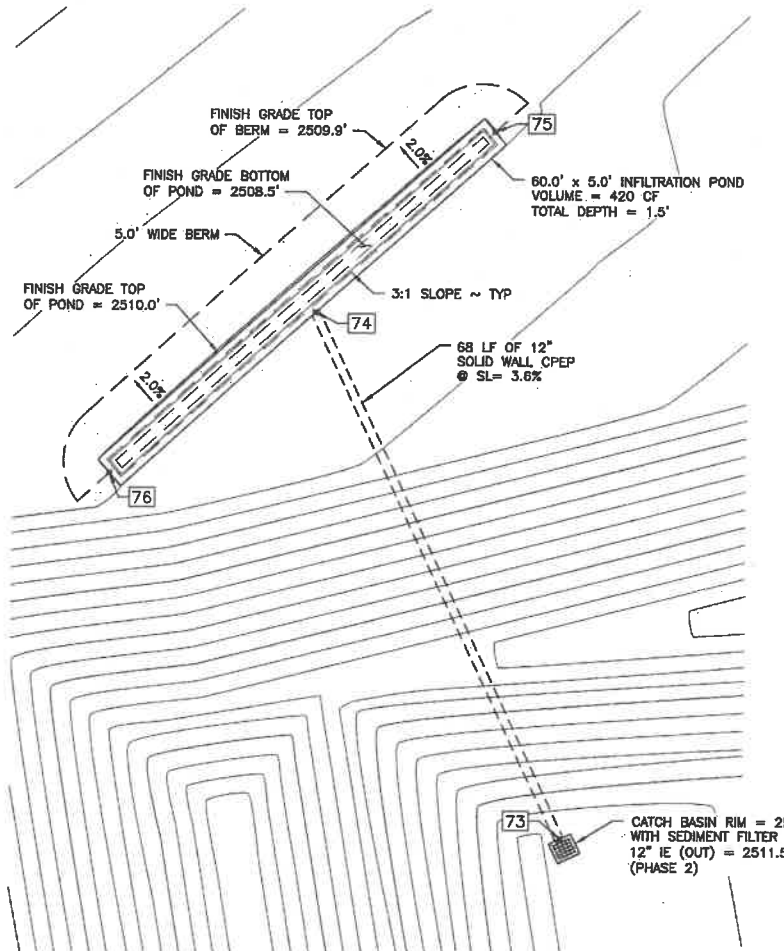
PROJECT NO.  
 KS:R167:19-2

SHEET 9 OF 12

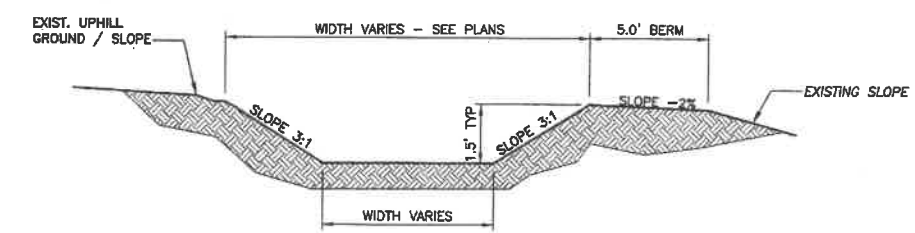
STORMWATER POINT DATA			
POINT #	EASTING	NORTHING	DESCRIPTION
73	1623379.48	569017.30	CATCH BASIN
74	1623350.86	569078.76	INFILTRATION INLET
75	1623371.26	569100.02	INFILTRATION POND
76	1623326.66	569059.86	INFILTRATION POND
77	1623963.15	569799.57	INFILTRATION POND
78	1624002.82	569806.31	INFILTRATION POND
79	1623983.61	569801.51	INFILTRATION INLET
80	1623984.84	569735.33	CATCH BASIN



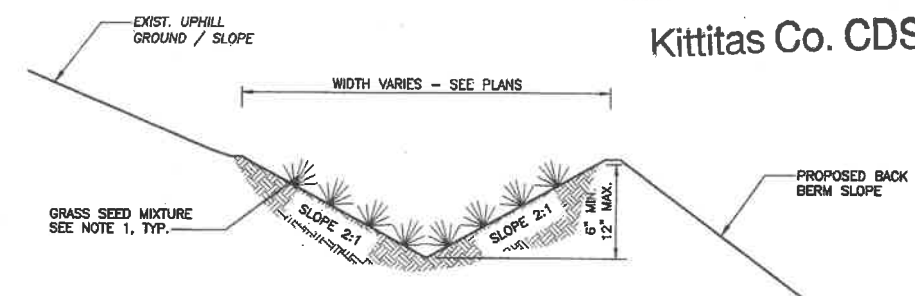
25 YARD PISTOL RANGE STORMWATER PLAN  
SCALE: 1" = 10'



100 YARD RIFLE RANGE STORMWATER PLAN  
SCALE: 1" = 10'



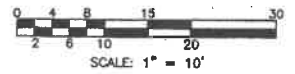
TYPICAL INFILTRATION POND  
NOT TO SCALE



TYPICAL SWALE CONNECTOR DETAIL  
NOT TO SCALE

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NOTES:  
PHASE 1 INSTALL SWALE CONNECTOR BETWEEN POINTS 78-80 & 73-74  
PHASE 2 INSTALL CATCH BASIN & PIPE



NOTES:

1. THE SEED MIX SHALL BE PER WDFW STANDARDS:

COMMON NAME	SPECIES NAME	LBS/ACRE
BLUEBUNCH WHEATGRASS	PSUEDOROGENERIA SPICATA	5.0
IDAHO FESCUE	FESTUCA IDAHOENSIS	2.0
BOTTLEBRUSH SQUIRREL TAIL	ELYMUS ELYMOIDES	1.5
SANDBERG BLUEGRASS	POA SECUNDA	1.5
PRAIRIE JUNEGRASS	KOELERIA MACRANTHA	1.0
GREAT BASIN WILDRIE	LEYMUS CINEREUS	0.3
BIG SAGEBRUSH	ARTEMISIA TRIDENTATA	0.1
RICE HULLS AS PLANTING AIDE		3.0
TOTALS		14.4

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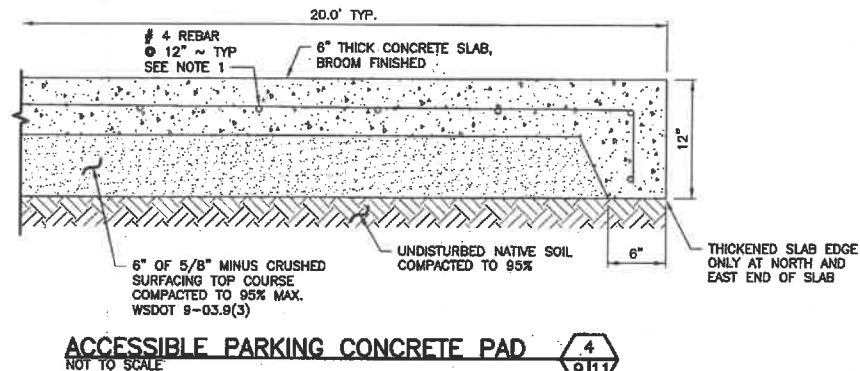
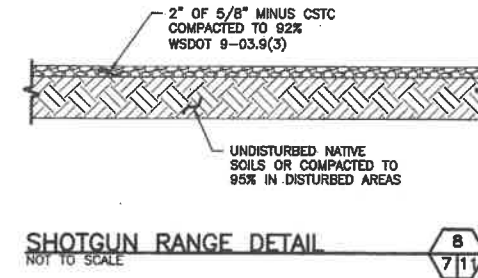
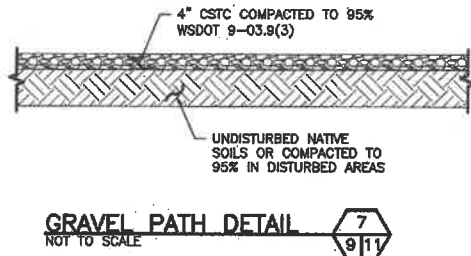
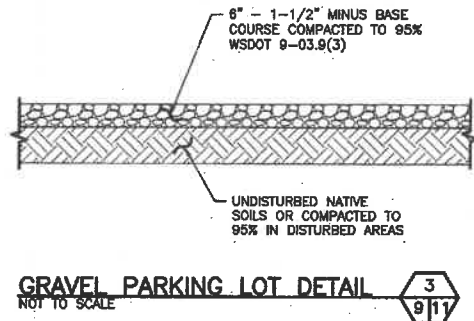


SYM	DATE	REVISION DESCRIPTION	BY
		APPROVED AND RELEASED FOR CONSTRUCTION	
CHIEF ENGINEER			<i>D. Hansen</i>
PROGRAM			

DESIGNED BY J. HANSEN  
CHECKED BY D. SMITH  
DRAWN BY J. LONG  
DATE 08/21/2019

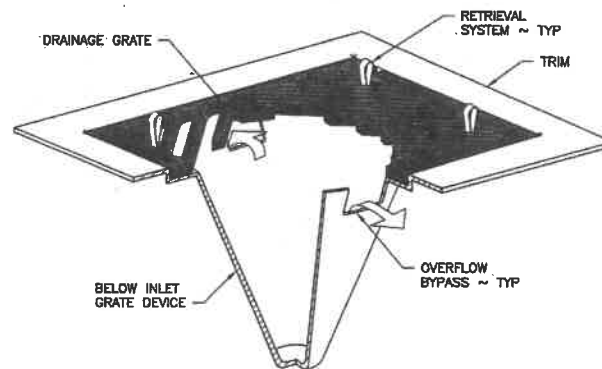
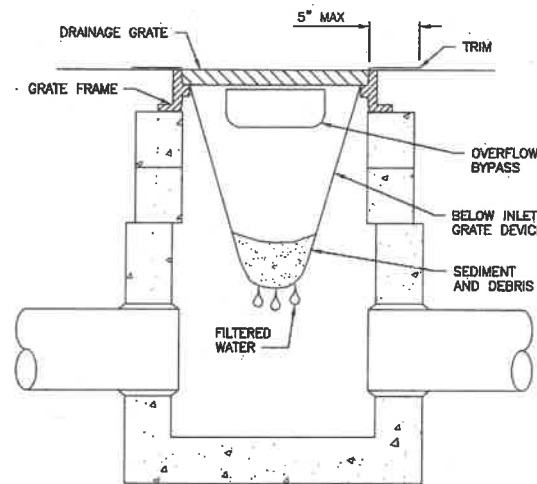
WENAS WLA - WENAS UNIT  
DURR ROAD GUN RANGE  
STORMWATER MANAGEMENT  
PLAN & DETAILS

PROJECT NO. KS:R167:19-2	
SHEET 10	OF 12



**NOTES:**

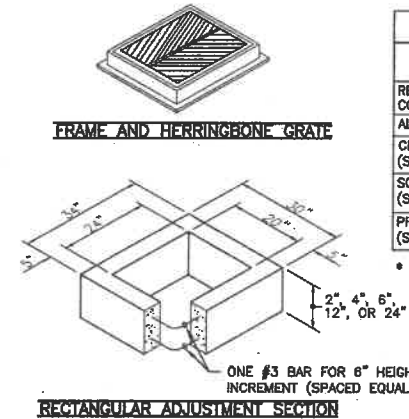
1. CONCRETE SLAB WILL CONSIST OF 4,500 PSI CONCRETE WITH #4 REBAR AT 12" OC BOTH DIRECTIONS.
2. CONCRETE PARKING SLABS SHALL BE POURED MONOLITHICALLY. CONTRACTOR SHALL CONSTRUCT A TOOLED OR SAWCUT JOINTS OF 1-1/2" DEPTH IN A NORTH/SOUTH DIRECTION ALONG THE PARKING STALL STRIPE LINE (9" O.C.) AND ALONG THE CENTER OF THE 20.0' DIMENSION.



**CATCH BASIN SEDIMENT INSERT** 9  
NOT TO SCALE 10/11

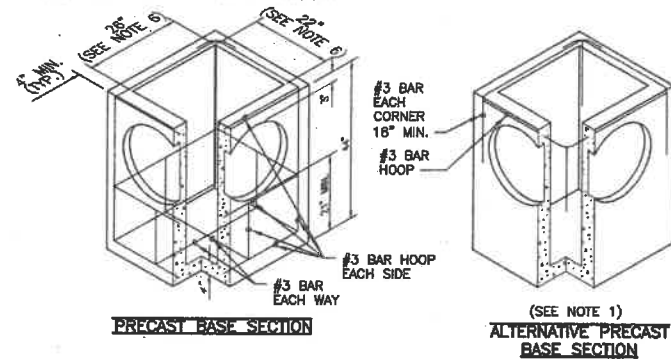
**NOTES:**

1. SIZE THE BELOW INLET GRATE DEVICE (BIGD) FOR THE STORM WATER STRUCTURE IT WILL SERVICE.
2. THE BIGD SHALL HAVE A BUILT-IN HIGH FLOW RELIEF SYSTEM (OVERFLOW BYPASS).
3. THE RETRIEVAL SYSTEM MUST ALLOW REMOVAL OF THE BIGD WITHOUT SPILLING THE COLLECTED MATERIAL.
4. PERFORM MAINTENANCE IN ACCORDANCE WITH STANDARD WSDOT SPECIFICATION 8-01.3(15).



PIPE ALLOWANCES	
PIPE MATERIAL	MAX INSIDE DIAMETER
REINFORCED OR PLAIN CONCRETE	12"
ALL METAL PIPE	15"
CPSSP* (STD. SPEC. 9.05.20)	12"
SOLID WALL PVC (STD. SPEC. 9-05.12(1))	15"
PROFILE WALL PVC (STD. SPEC. 9-05.12(2))	15"

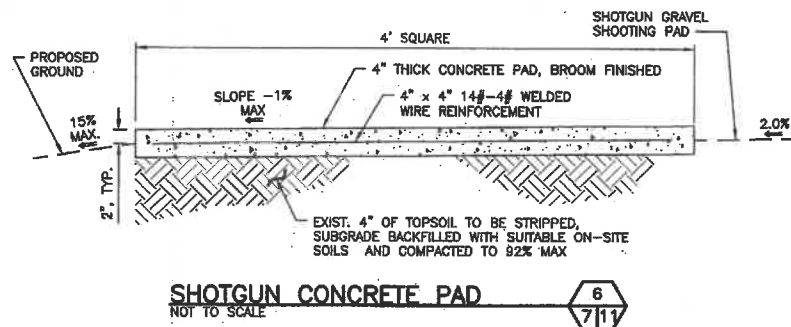
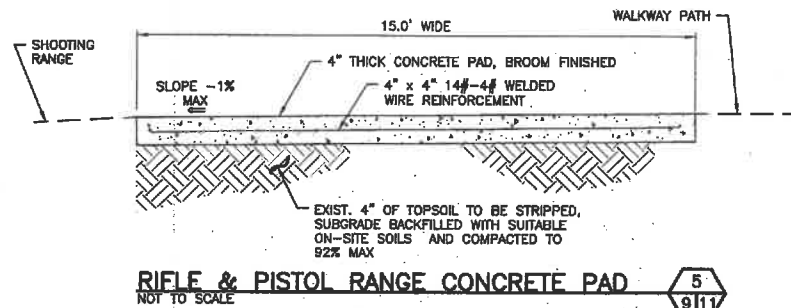
\* CORRUGATED POLYETHYLENE STORM SEWER PIPE



**WSDOT CATCH BASIN TYPE 1** 10  
NOT TO SCALE 10/11

**NOTES:**

1. AS ACCEPTABLE ALTERNATIVES TO THE REBAR SHOWN IN THE PRECAST BASE SECTION, FIBERS (PLACED ACCORDING TO THE STANDARD SPECIFICATIONS), OR WIRE MESH HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT SHALL BE USED WITH THE MINIMUM REQUIRED REBAR SHOWN IN THE ALTERNATIVE PRECAST BASE SECTION. WIRE MESH SHALL NOT BE PLACED IN THE KNOCKOUTS.
2. THE KNOCKOUT DIAMETER SHALL NOT BE GREATER THAN 20". KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM TO 2.5" MAXIMUM. PROVIDE A 1.5" MINIMUM GAP BETWEEN THE KNOCKOUT WALL AND THE OUTSIDE OF THE PIPE. AFTER THE PIPE IS INSTALLED, FILL THE GAP WITH JOINT MORTAR IN ACCORDANCE WITH STANDARD SPECIFICATION 9-04.3.
3. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE LOWEST PIPE INVERT SHALL BE 5'.
4. THE FRAME AND GRATE MAY BE INSTALLED WITH THE FLANGE DOWN, OR INTEGRALLY CAST INTO THE ADJUSTMENT SECTION WITH FLANGE UP.
5. THE PRECAST BASE SECTION MAY HAVE A ROUNDED FLOOR, AND THE WALLS MAY BE SLOPED AT A RATE OF 1:24 OR STEEPER.
6. THE OPENING SHALL BE MEASURED AT THE TOP OF THE PRECAST BASE SECTION.
7. ALL PICKUP HOLES SHALL BE GROUTED FULL AFTER THE BASIN HAS BEEN PLACED.



WASHINGTON DEPARTMENT OF  
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SYM	DATE	REVISION DESCRIPTION	BY
		DESIGNED BY J. HANSEN	
		CHECKED BY D. SMITH	
		DRAWN BY J. LONG	
		DATE 08/21/2019	

APPROVED AND RELEASED FOR CONSTRUCTION

CHIEF ENGINEER *[Signature]* DATE: *ZMA/A*

PROGRAM DATE:

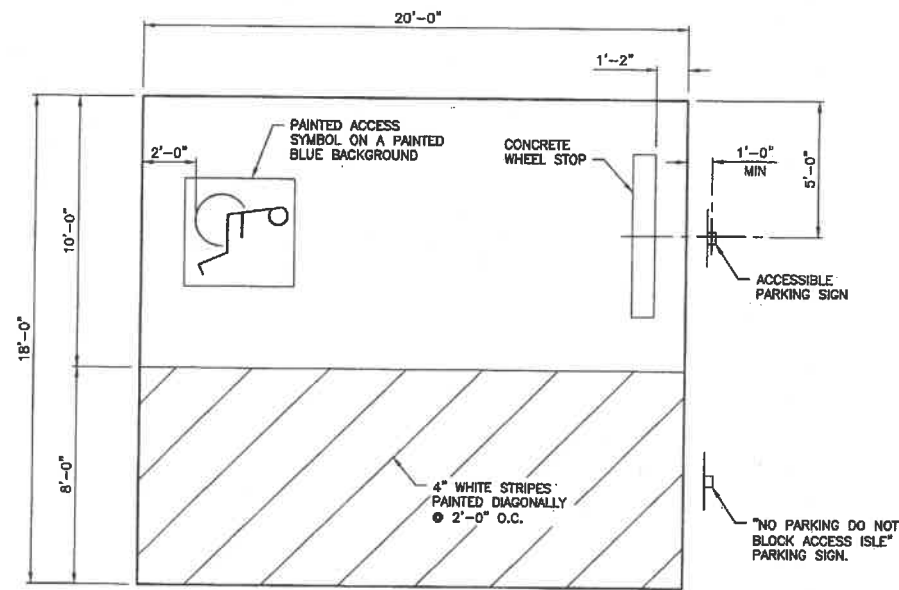
0 1"  
BAR MEASURES  
ONE INCH ON  
24x36 DRAWINGS

WENAS WLA - WENAS UNIT  
DURR ROAD GUN RANGE  
CONSTRUCTION DETAILS 1

PROJECT NO.  
KS:R167:19-2

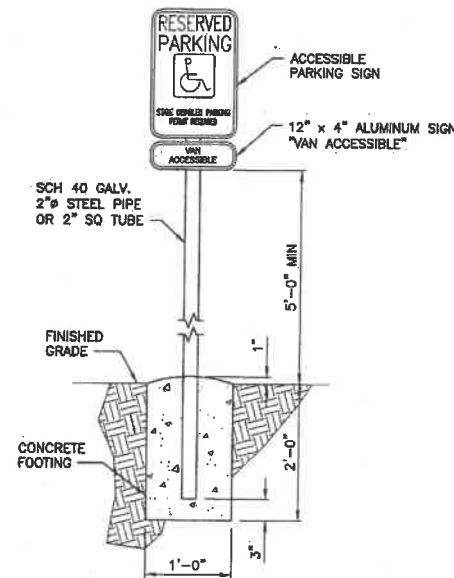
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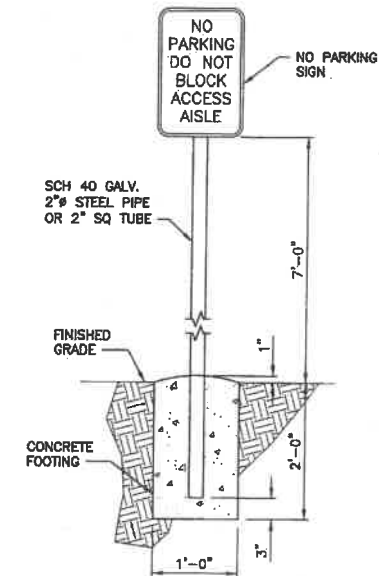
**VAN ACCESSIBLE PARKING AREA**

NOT TO SCALE  
NOTE: 2% MAXIMUM SLOPE IN ALL DIRECTIONS.



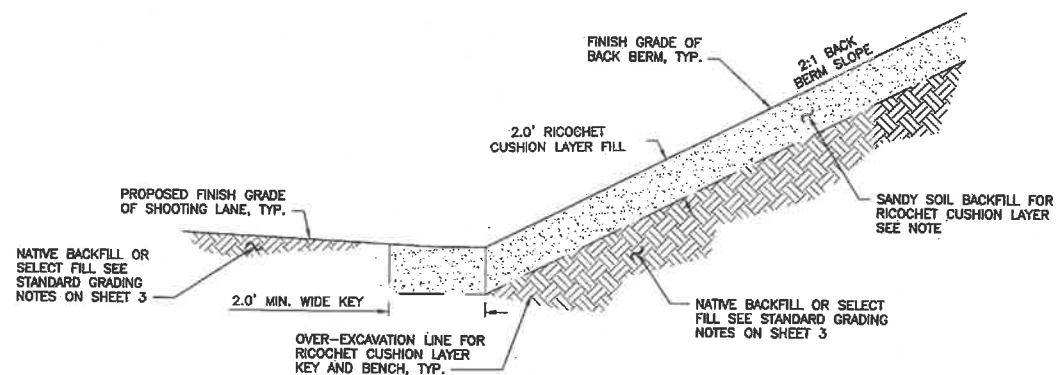
**ACCESSIBLE PARKING SIGN**

NOT TO SCALE  
NOTE: USE TAMPER RESISTANT NUTS TO ATTACH SIGNS TO POST.



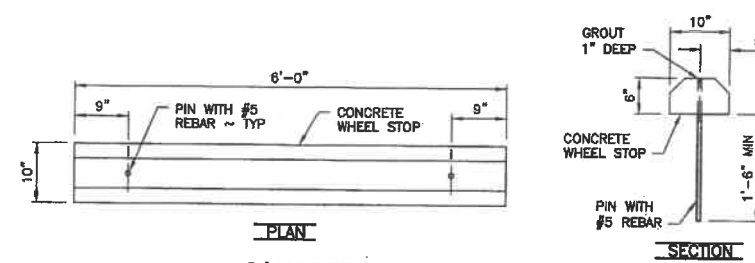
**NO PARKING SIGN**

NOT TO SCALE  
NOTE: USE TAMPER RESISTANT NUTS TO ATTACH SIGNS TO POST.



**BULLET IMPACT BERM DETAIL**

NOT TO SCALE  
NOTE: THESE SOILS SHALL BE SANDY SOILS WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM OF SP (POORLY GRADED SAND) OR SM (SILTY SAND) WITH PERCENT FINES BETWEEN 12% AND 30%.



**CONCRETE WHEEL STOP**

NOT TO SCALE

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SYM	DATE	REVISION DESCRIPTION	BY
APPROVED AND RELEASED FOR CONSTRUCTION			
CHIEF ENGINEER	<i>[Signature]</i>	DATE: 8/21/2019	DESIGNED BY J. HANSEN
PROGRAM		DATE: 08/21/2019	CHECKED BY D. SMITH
			DRAWN BY J. LONG

0 1"  
BAR MEASURES  
ONE INCH ON  
24x36 DRAWINGS

WENAS WLA -- WENAS UNIT  
DURR ROAD GUN RANGE  
CONSTRUCTION DETAILS 2

PROJECT NO.  
KS:R167:19-2  
SHEET OF  
12 12