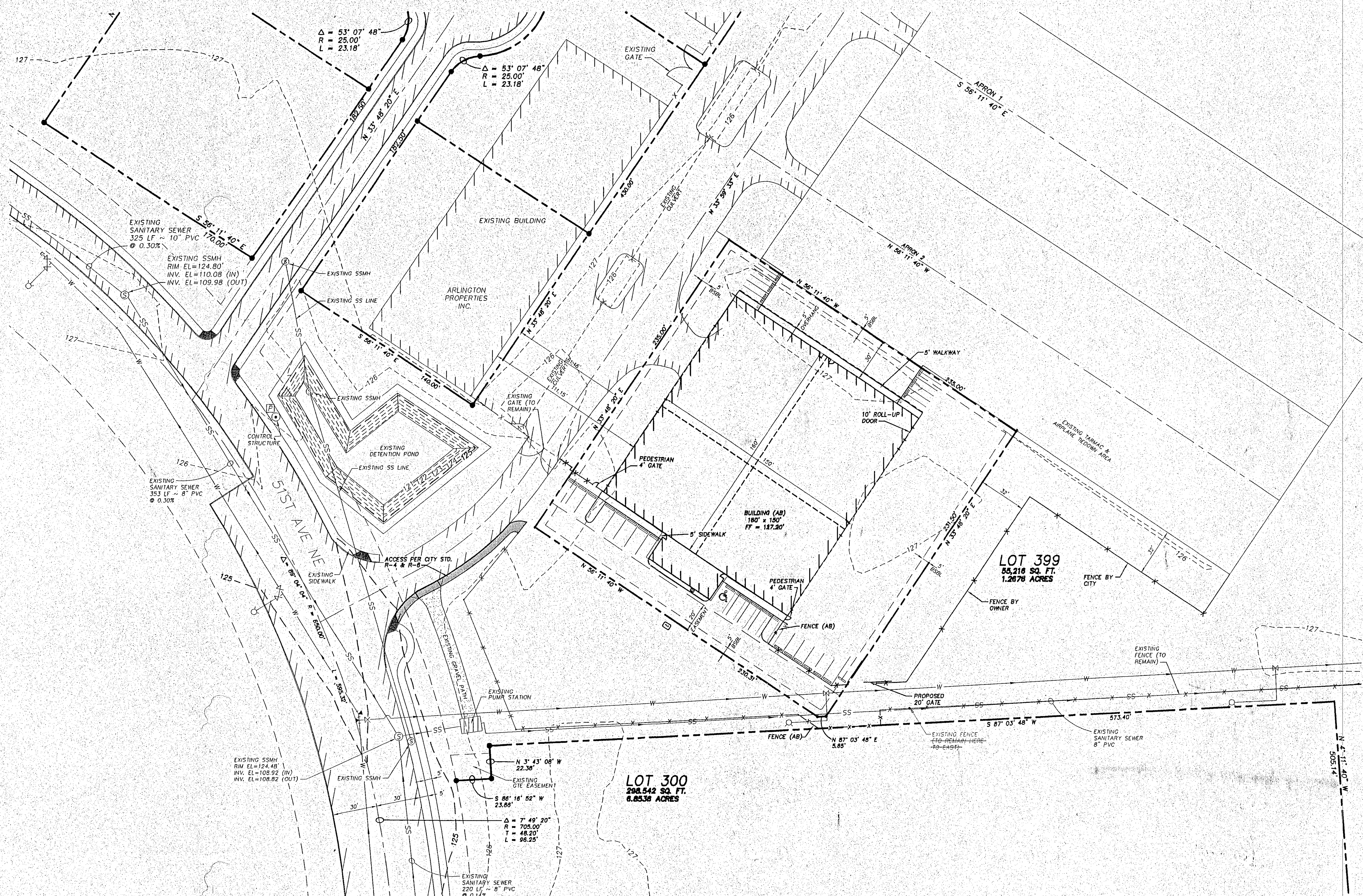
SOUTH WIND HANGAR



CALL 48 HOURS
BEFORE YOU DIG
1-800-553-4344

CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

THIS PLAN SHEET HAS BEEN REVIEWED AND EVALUATED FOR GENERAL COMPLIANCE WITH THE CITY OF ARLINGTON CODES AND ORDINANCE. CONFORMANCE OF THIS DESIGN WITH ALL APPLICABLE LAWS AND REGULATIONS IS THE FULL AND COMPLETE RESPONSIBILITY OF THE LICENSED DESIGN ENGINEER, WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET. ACKNOWLEDGMENT OF CONSTRUCTION DRAWING REVIEW DOES NOT IMPLY CITY APPROVAL FOR CONSTRUCTION ACTIVITIES THAT REQUIRE OTHER COUNTY, STATE OR FEDERAL PERMIT REVIEW AND APPROVAL. THE PROPERTY OWNER AND LICENSED DESIGN ENGINEER SHALL BE RESPONSIBLE FOR THE ACQUISITION AND COMPLIANCE OF ALL APPLICABLE PERMITS AND/OR AUTHORIZATIONS WHICH MAY INCLUDE, BUT ARE NOT LIMITED TO, WSDFW HYDRAULIC PROJECT APPROVAL (HPA), WSDOE NOTICE OF INTENT (NOI), ANY CORP OR ENGINEERS FILL PERMITS AND THE REQUIREMENTS OF THE ENDANGERED SPECIES ACT.

BY: ____________________
CITY ENGINEER

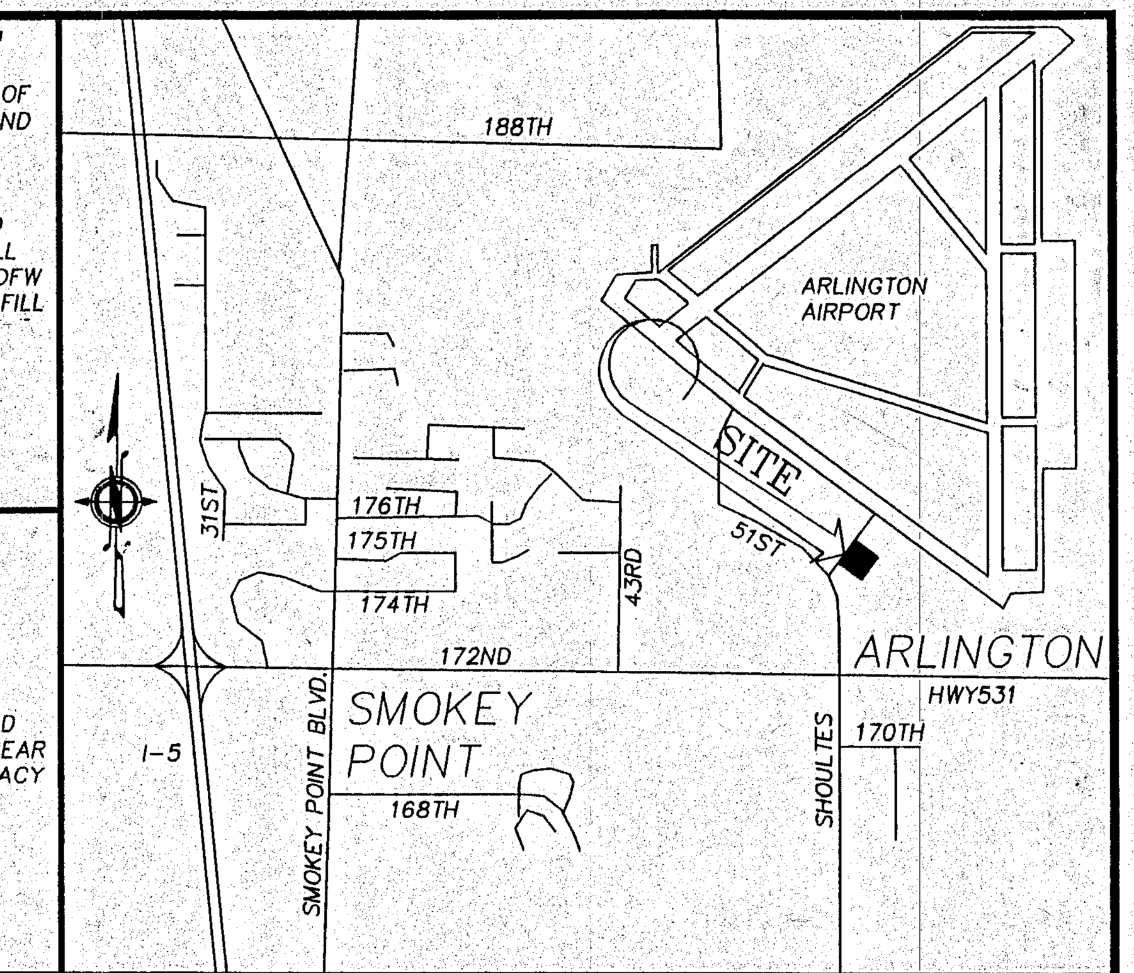
DATE: ___/___/___
THIS APPROVAL VALID FOR 18 MONTHS

CITY OF ARLINGTON
AS-BUILT CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

THIS AS-BUILT PLAN SHEET HAS BEEN REVIEWED AND ACCEPTED AS A RECORD DRAWING. THE LICENSED DESIGN ENGINEER WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET ASSUMES FULL AND COMPLETE RESPONSIBILITY FOR THE ACCURACY THEREIN.

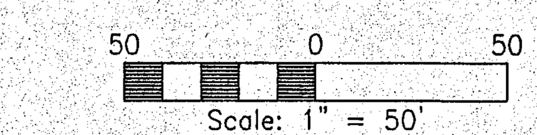
BY: [signature]
CITY ENGINEER

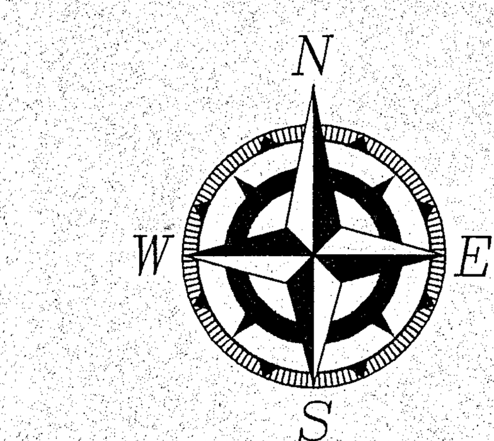
DATE: 4 / 10 / 06
~~THIS APPROVAL VALID FOR 18 MONTHS~~



VICINITY MAP
SCALE 1" = 2,000 FT.

T.B.M.:
BRASS WSDOT DESIGNATION "GP31531-162"
LOCATED AT N.E. SIDE JCT. SR531
& SR005 ON 51st AVE N.E.
END OF S/W.
ELEV. = 125.03 MSL
(NAVD 88)





INDEX TO DRAWINGS:

BOUNDARY SURVEYOR:
CASCADE SURVEYING AND ENGINEERING, INC.
P.O. BOX 326
ARLINGTON, WA 98223
(360) 435-5551

TOPO SURVEYOR & ENGINEER:
PERCO ENGINEERING, P.C.
9920 271st ST. SW
STANWOOD, WA 98292
(360) 629-6710

APPLICANT:
W. NEAL KARMAN
1725 VERNON ROAD
LAKE STEVENS, WA 98258
(425) 418-4299

INFILTRATOR CONTACT:
STORMWATER DEPARTMENT, INFILTRATOR SYSTEMS INC.
4 BUSINESS PARK ROAD
P.O. BOX 768, OLD SAYBROOK, CT 06475
1-800-221-4436

KRISTAR CONTACT:
FLO-GARD SYSTEMS
DISTRIBUTOR: JOE SHEEHY
OLYMPIA
(253) 840-3923

GEOTECHNICAL ENGINEER:
WESTERN GEOTECHNICAL CONSULTANTS
4183 SALTSPRINGS DRIVE
FERNDALE, WA 98248
(360) 380-2507

OWNER:
W. NEAL KARMAN
1725 VERNON ROAD
LAKE STEVENS, WA 98258
(425) 418-4299

SITE INFORMATION:
TOTAL LANDSCAPING AREA: 3,231 SQ. FT.
PARKING SPACES (REQUIRED): 25
PARKING SPACES (PROVIDED): 30
IMPERVIOUS AREA: 52,145 SQ. FT.
BUILDING AREA: 25,000 SQ. FT. (MAIN FLOOR)
3,500 SQ. FT. (UPPER FLOOR)

PROJECT INFORMATION:
TAX NO.: CITY PROPERTY
SITE ADDRESS: NO ADDRESS HAS BEEN ASSIGNED
TOTAL AREA: 174,240 S.F. (4.0 AC.)
ZONING: COMMERCIAL
EX. SOIL: LYNNWOOD TYPE A
EXISTING GROUND COVER = GRASS

LEGEND

EXISTING	PROPOSED	
		STORM DRAIN CATCH BASIN (CB)
		TYPE 1L W/ OIL WATER SEPARATOR (SDMH)
		SANITARY SEWER MANHOLE (SSMH)
		TELEPHONE PEDESTAL
		POWER POLE
YD	YD	YARD DRAIN
WM	WM	WATER METER
GV	GV	WATER VALVE
FH	FH	FIRE HYDRANT
		CENTERLINE
	FF	FINISHED FLOOR
	100.00	SPOT ELEVATION
		FLOW
		EXISTING BUILDING
		PROPOSED BUILDING
	102	EXISTING CONTOUR
	100	PROPOSED CONTOUR
	SD	STORM DRAINAGE
	SS	SANITARY SEWER
	W	WATER LINE
	BSBL	BUILDING SETBACK LINE
	N 90° 0' 00" W	PROPERTY LINE
		FENCE LINE
		CULVERT
		EDGE OF PAVEMENT

WE HEREBY DECLARE THAT THE ROAD AND STORM DRAINAGE IMPROVEMENTS ARE LOCATED AS SHOWN ON THESE RECORD DRAWINGS

BY: Dan Parrent 7/17/06
PROJECT ENGINEER/SURVEYOR DATE

BY: ____________________
PLAT DEVELOPER/OWNER DATE

7/17/06
DAN R. PARRENT
STATE OF WASHINGTON
30764
REGISTERED PROFESSIONAL ENGINEER
EXPIRES 6/20/08

UTILITY CONFLICT NOTE:
CAUTION:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT, BY POTHOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE @ 1-800-553-4344 AND THEN POTHOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL CONSULT PERCO ENGINEERING TO RESOLVE ALL PROBLEMS PRIOR

CONSTRUCTION SEQUENCE:
1. PRE-CONSTRUCTION MEETING.
2. FLAG OR FENCE CLEARING LIMITS.
3. POST NOTICE OF CONSTRUCTION ACTIVITY SIGN WITH NAME AND PHONE NUMBER OF ESC SUPERVISOR.
4. INSTALL CATCH BASIN PROTECTION IF REQUIRED.
5. GRADE AND INSTALL CONSTRUCTION ENTRANCE(S).
6. INSTALL PERIMETER PROTECTION (SILT FENCE, BRUSH BARRIER, ETC.).
7. CONSTRUCT SEDIMENT PONDS AND TRAPS.
8. GRADE AND STABILIZE CONSTRUCTION ROADS.
9. CONSTRUCT SURFACE WATER CONTROLS (INTERCEPTOR DIKES, PIPE SLOPE DRAINS, ETC.) SIMULTANEOUSLY WITH CLEARING AND GRADING FOR PROJECT MANAGEMENT.
10. MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH SNOHOMISH COUNTY STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
11. RELOCATE SURFACE WATER CONTROLS AND EROSION CONTROL MEASURES OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE THE EROSION AND SEDIMENT CONTROL IS ALWAYS IN ACCORDANCE WITH THE SNOHOMISH COUNTY EROSION AND SEDIMENT CONTROL STANDARDS.
12. COVER ALL AREAS THAT WILL BE UNWORKED FOR MORE THAN SEVEN DAYS DURING THE DRY SEASON OF TWO DAYS DURING THE WET SEASON WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING OR EQUIVALENT.
13. STABILIZE ALL AREAS THAT REACH FINAL GRADE WITHIN SEVEN DAYS.
14. SEED OR SOD ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.
15. UPON COMPLETION OF THE PROJECT, ALL DISTURBED AREAS MUST BE STABILIZED AND BEST MANAGEMENT PRACTICES REMOVED IF APPROPRIATE.

LEGAL DESCRIPTION
THAT PORTION OF THE SOUTHWEST QUARTER OF SECTION 22, TOWNSHIP 31 NORTH, RANGE 5 EAST, W.M., MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF THE SOUTHWEST QUARTER OF SAID SECTION 22 WHICH BEARS S87°12'48"W FROM THE SOUTH QUARTER CORNER OF SAID SECTION 22; THENCE N2°20'06"E A DISTANCE OF 1096.42 FEET TO THE TRUE POINT OF BEGINNING; THENCE N33°48'20"E A DISTANCE OF 235.00 FEET; THENCE S56°11'40"E A DISTANCE OF 235.00 FEET; THENCE S33°48'20"W A DISTANCE OF 231.50 FEET; THENCE S87°03'48"W A DISTANCE OF 5.85 FEET; THENCE N56°11'40"W A DISTANCE OF 230.31 FEET TO THE TRUE POINT OF BEGINNING.

SUBJECT TO AND TOGETHER WITH A 20 FOOT WIDE EASEMENT FOR INGRESS, EGRESS AND UTILITIES OVER, ACROSS AND UNDER THE FOLLOWING DESCRIBED AREA:

BEGINNING AT THE PREVIOUSLY MENTIONED TRUE POINT OF BEGINNING; THENCE N33°48'20"E A DISTANCE OF 20.00 FEET; THENCE S56°11'40"E A DISTANCE OF 223.67 FEET; THENCE N87°03'48"E A DISTANCE OF 14.14 FEET; THENCE S33°48'20"W A DISTANCE OF 24.96 FEET; THENCE S87°03'48"W A DISTANCE OF 5.85 FEET; THENCE N56°11'40"W A DISTANCE OF 230.31 FEET TO THE TRUE POINT OF BEGINNING.

SUBJECT TO AND TOGETHER WITH EASEMENTS, CONDITIONS, COVENANTS, RESERVATIONS, AND RESTRICTIONS OF RECORD.

SITUATE IN SNOHOMISH COUNTY, STATE OF WASHINGTON.

CONTAINING 1.2676 ACRES OF LAND.

CONTAINING 1.1588 ACRES OF LAND LESS EASEMENT.

AS-BUILT

1	CITY REVISIONS	MNF	7/22/03
REV. NO.	DESCRIPTION	INITIALS	DATE

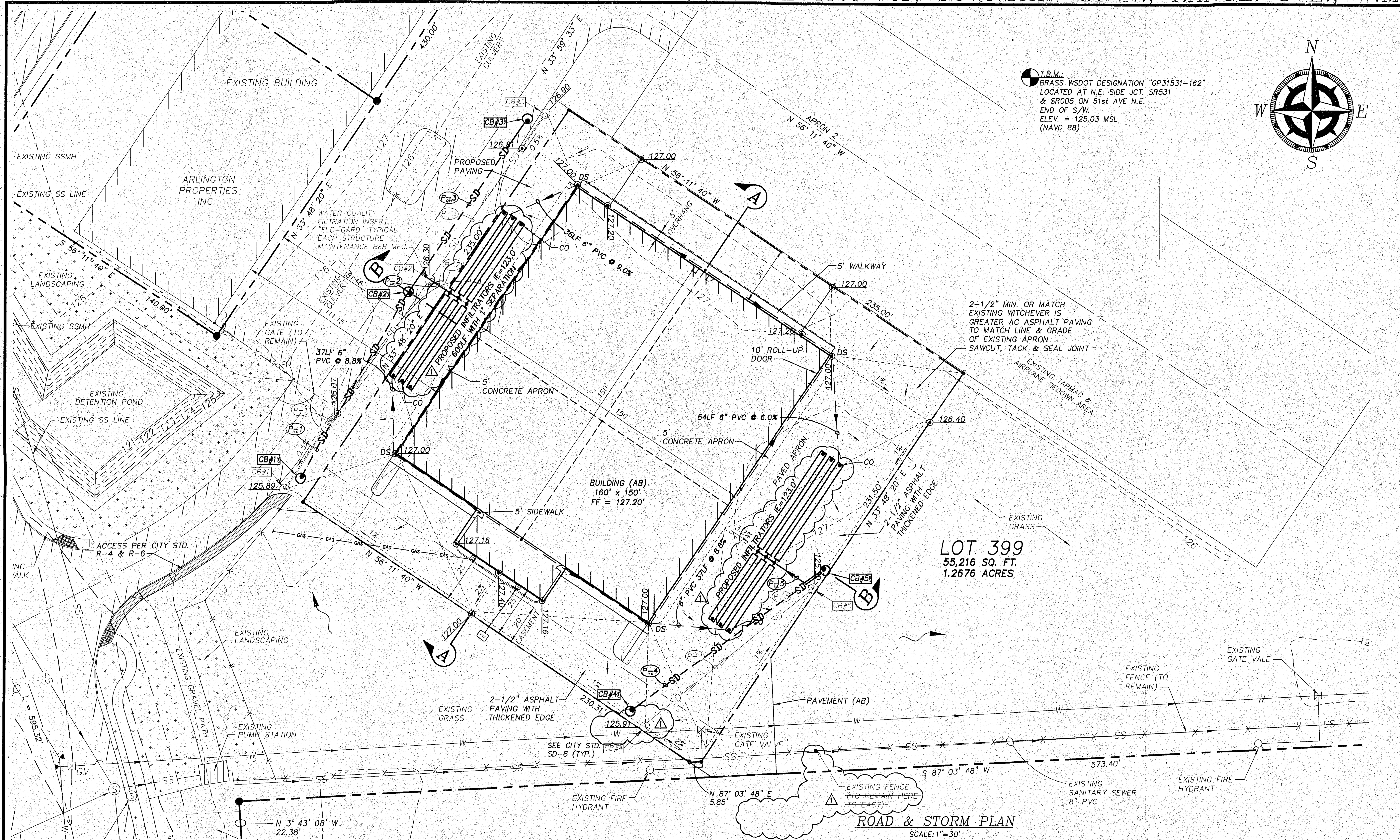
FILE #: MN-03-031

PERCO
ENGINEERING P.C.
(PROFESSIONAL SERVICES CORP.)
9920 - 271st ST. NW
STANWOOD, WASH. 98292
PHONE: (360) 629-6710

COVER SHEET
FOR
W. NEAL KARMAN

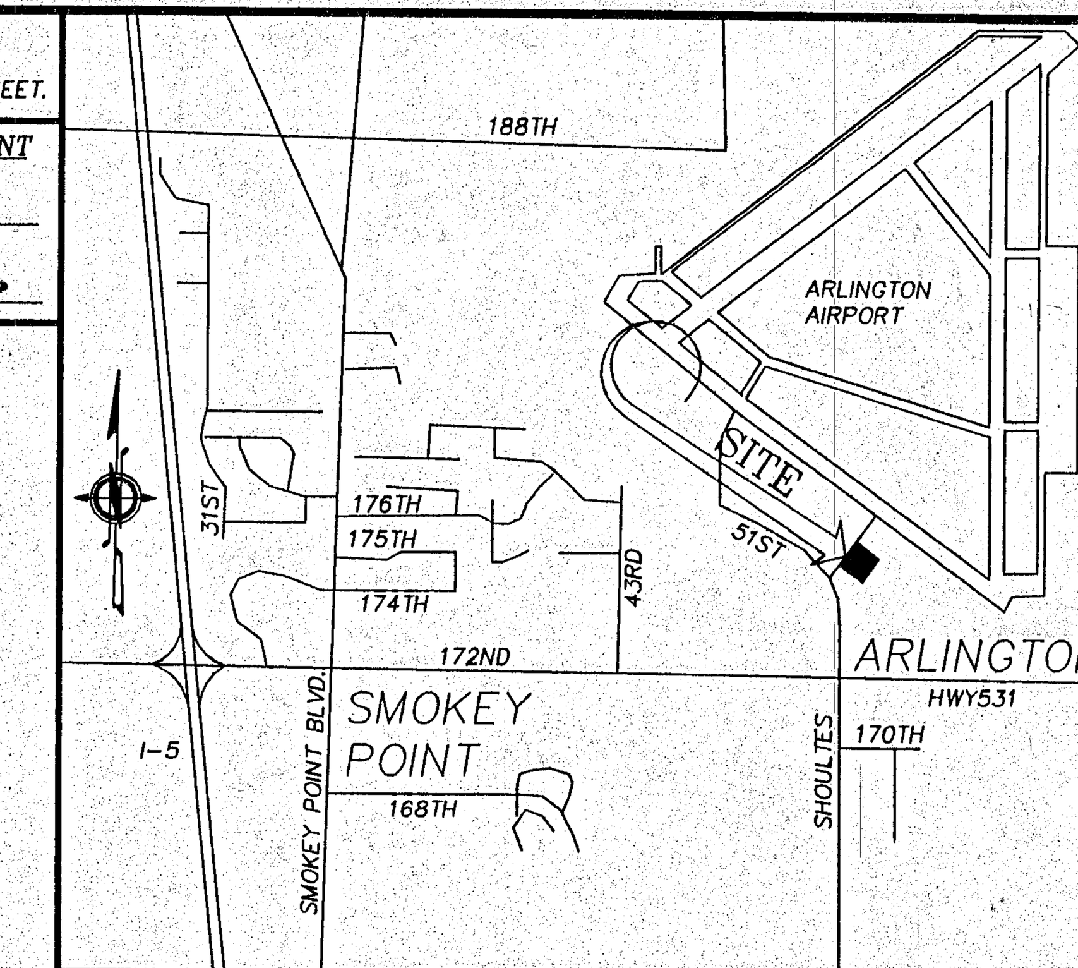
design DRP
drawn MNF
app'v'd
date 7-22-03
dwg. 1 OF 8
scale 1" = 50'
job no. 22081

File Name: C:\Jobs\karman\karman.DWG



ROAD & STORM PLAN
SCALE: 1"=30'

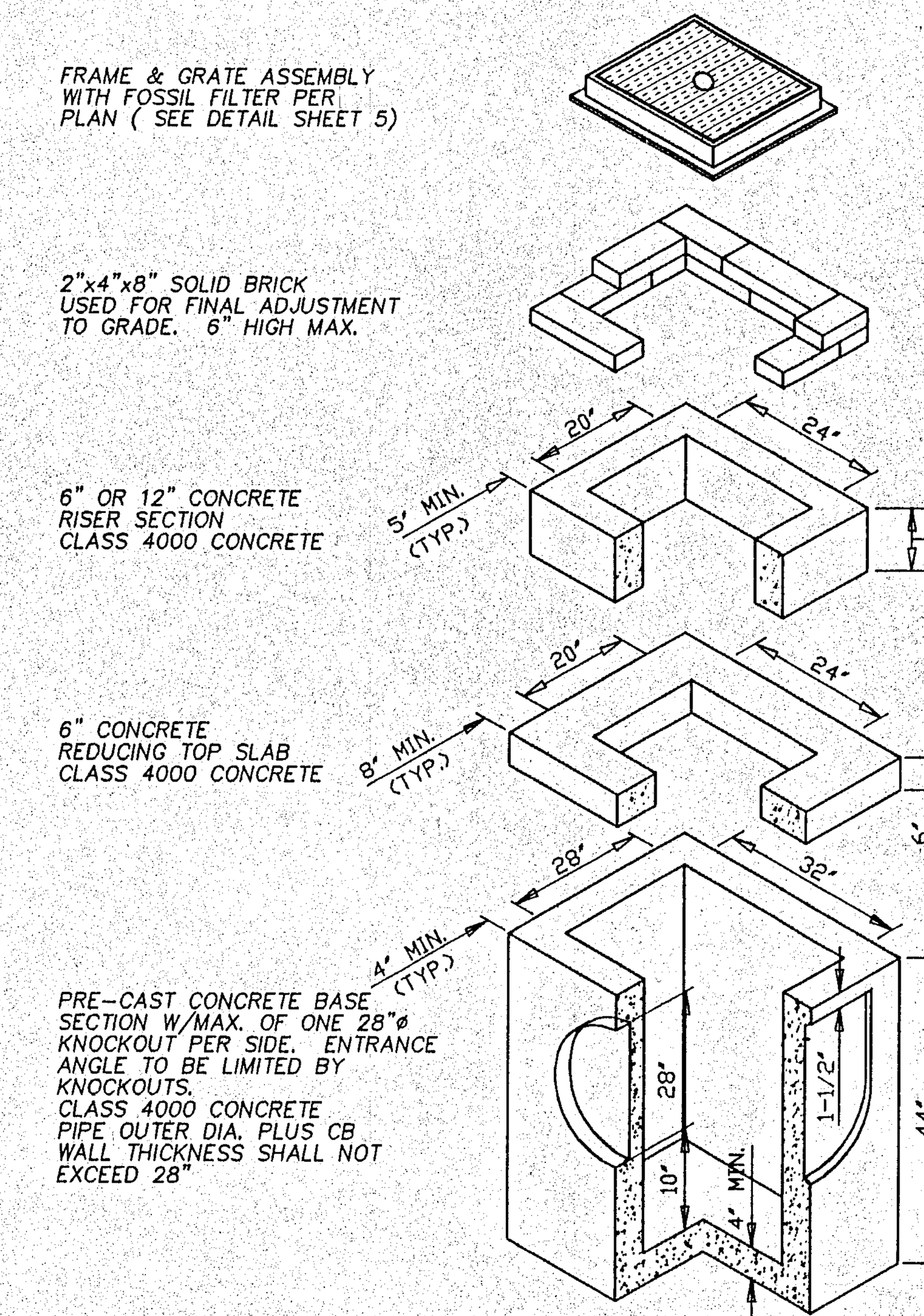
CITY OF ARLINGTON	
THIS SHEET HAS BEEN APPROVED PER CONDITIONS ON THE COVER SHEET.	
CONSTRUCTION	AS-BUILT ACKNOWLEDGMENT
BY: ______ CITY ENGINEER	BY: [signature] CITY ENGINEER
DATE: / /	DATE: 8 / 10 / 06



VICINITY MAP
SCALE 1" = 2,000 FT.

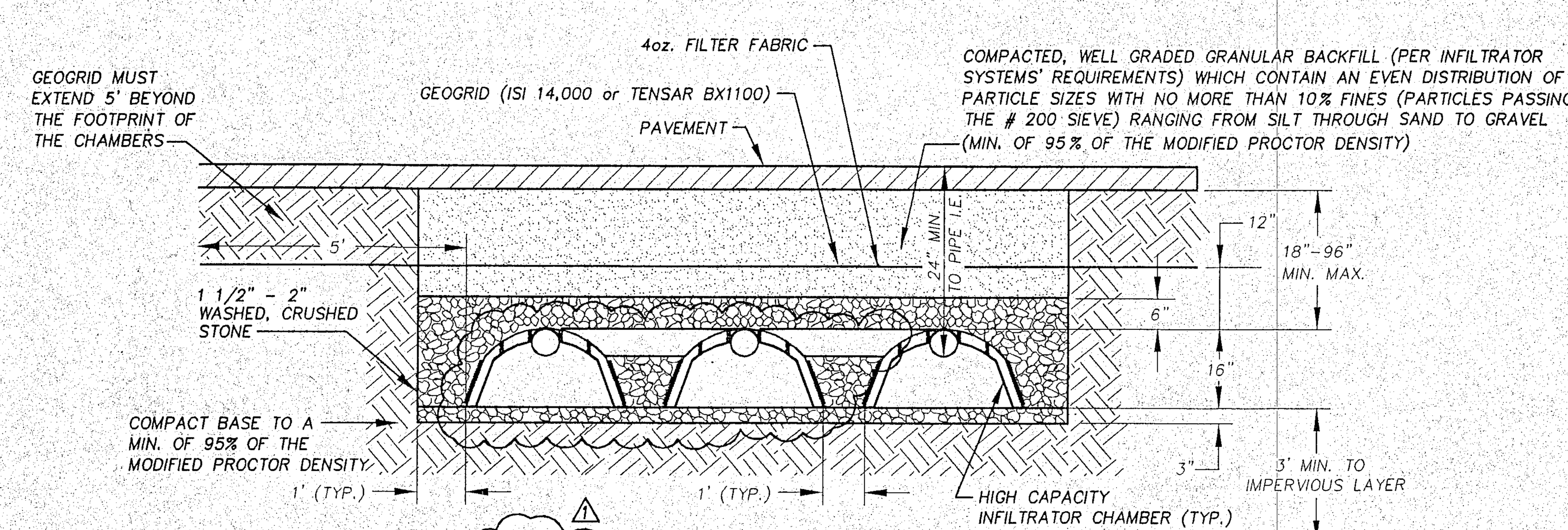
LEGEND

EXISTING	PROPOSED	
		STORM DRAIN CATCH BASIN (CB)
		TYPE 1L W/ OIL WATER SEPARATOR (SDMH)
		SANITARY SEWER MANHOLE (SSMH)
		TELEPHONE PEDESTAL
		POWER POLE
YD	YD	YARD DRAIN
WM	WM	WATER METER
GV	GV	WATER VALVE
FH	FH	FIRE HYDRANT
		CENTERLINE
	FF	FINISHED FLOOR
	100.00	SPOT ELEVATION
		FLOW
		EXISTING BUILDING
		PROPOSED BUILDING
	102	EXISTING CONTOUR
	100	PROPOSED CONTOUR
	SD	STORM DRAINAGE
	SS	SANITARY SEWER
	W	WATER LINE
	BSBL	BUILDING SETBACK LINE
	N 90° 0' 00" W	PROPERTY LINE
		FENCE LINE
		CULVERT
		EDGE OF PAVEMENT



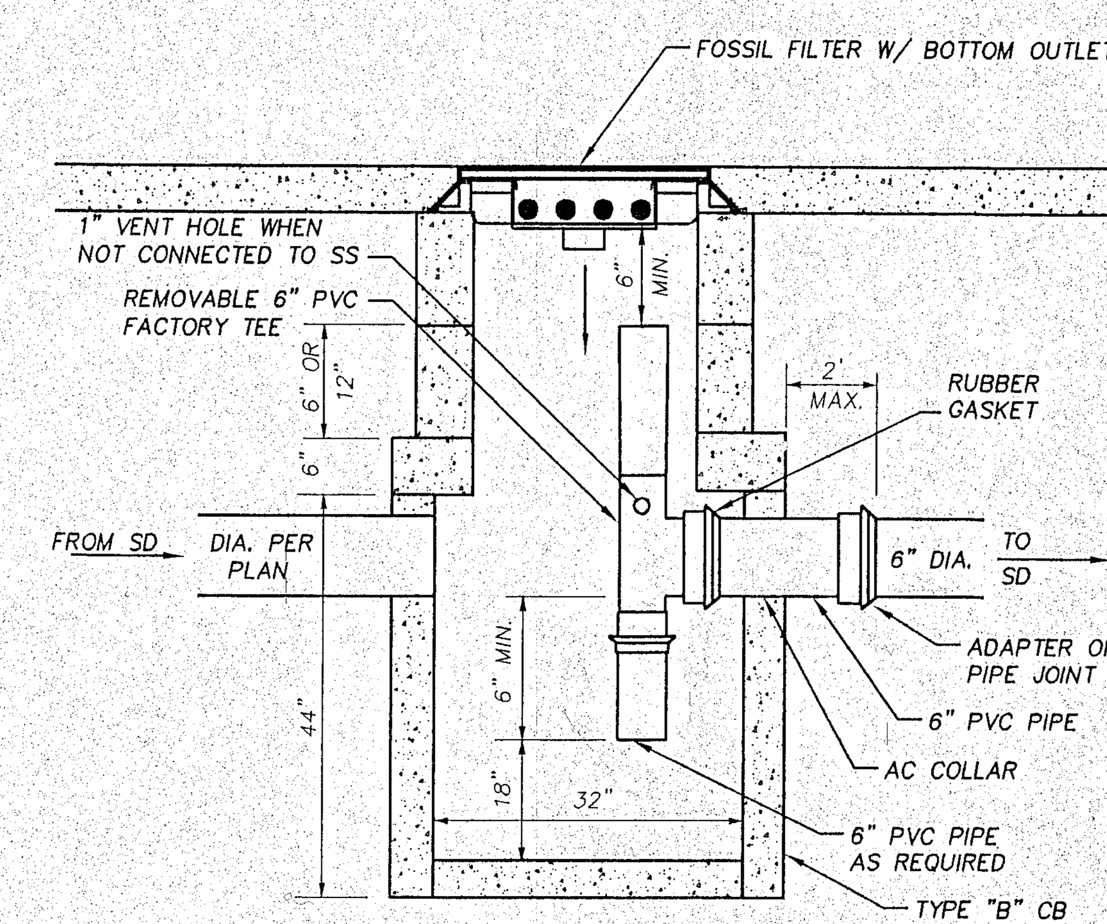
NOTE: SEE STANDARD DRAWING SD-8 FOR TEE DETAIL WHEN REQUIRED.
CATCH BASIN TO CONFORM TO WSDOT STANDARD PLAN B-1A

CATCH BASIN TYPE 1L
W/RESTRICTOR
N.T.S. (SEE ARLINGTON CITY STD. SD-3)



NOTES:
1. DIG ONE EXTRA FOOT BEYOND THE PLANNED FOOTPRINT OF THE CHAMBER BED. THIS ALLOWS WORKING SPACE FOR SETTING THE CHAMBERS AND FACILITATES BACKFILL COMPACTION.
2. CONTRACTOR MUST CONTACT INFILTRATOR SYSTEMS INC. PRIOR TO INSTALLATION. LOCAL DISTRIBUTER: FOWLER (206) 746-8400.

INFILTRATOR TYPICAL CROSS SECTION
HIGH CAPACITY INFILTRATOR CHAMBER SYSTEM
NOT TO SCALE



STANDARD OIL/WATER SEPARATOR
W/RESTRICTOR
N.T.S. (SEE ARLINGTON CITY STD. SD-8)

WE HEREBY DECLARE THAT THE ROAD AND STORM DRAINAGE IMPROVEMENTS ARE LOCATED AS SHOWN ON THESE RECORD DRAWINGS

BY: [signature: Dan Parrent] — PROJECT ENGINEER/SURVEYOR — DATE: 7/17/06

BY: ______ PLAT DEVELOPER/OWNER — DATE: ______

UTILITY CONFLICT NOTE:
CAUTION:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT, BY POTHOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE @ 1-800-553-4344 AND THEN POTHOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL CONSULT PERCO ENGINEERING TO RESOLVE ALL PROBLEMS PRIOR

NOTE:
1. THE GEOTECHNICAL CONSULTANT MAY BE ON-SITE PERIODICALLY TO INSPECT THE SITE AND TO ADVISE THE CONSTRUCTION MANAGER AS NEEDED TO ADVISE REGARDING STORM DRAINAGE OR OTHER PROBLEMS

WINTER CONSTRUCTION NOTES:
1. CAUTION: WINTER CONSTRUCTION AFTER NOVEMBER 1, IS NOT AUTHORIZED BY THESE CONSTRUCTION PLANS. PRIOR TO WINTER CONSTRUCTION, AN AREA SPECIFIC STORMWATER POLLUTION PREVENTION PLAN MAY BE APPROVED BY CITY ADDRESSING THE SPECIFIC AREAS TO BE GRADED. APART FROM SAID APPROVAL NO WINTER GRADING WILL BE AUTHORIZED.

CALL 48 HOURS
BEFORE YOU DIG
1-800-553-4344

DRAINAGE PIPE DESIGN INFORMATION

PIPE	TYPE ⚠1	TYPE AS-BUILT	LENGTH	LENGTH AS-BUILT	SLOPE	SLOPE AS-BUILT	ADDITIONAL INFORMATION
P-1	12" D.I.	CL 900	127'	109'	0.46%	0.60%	
P-2	8" D.I.	SR 35 PVC	10'	10'	3.00%	3.00%	
P-3	12" D.I.	CL 900	100'	101'	0.73%	0.72%	
P-4	12" D.I.	CL 900	106'	119'	0.50%	0.24%	
P-5	8" D.I.	SR 35 PVC	25'	24'	0.29%	0.29%	

CATCH BASIN DESIGN INFORMATION

CB#	TYPE	DESIGN TOP ELEV.	AS-BUILT TOP ELEV.	DESIGN INV. ELEV.	AS-BUILT INV. ELEV.	ADDITIONAL INFORMATION
#1	1L	125.89	125.98	123.86	123.95	W.Q. FILTER BAG INSERT
#2	1L	126.30	126.25	123.30	123.30	W.Q. FILTER BAG INSERT
#3	1L	126.90	126.46	124.03	124.03	W.Q. FILTER BAG INSERT
#4	1L	125.91	126.10	123.79	123.79	W.Q. FILTER BAG INSERT
#5	1L	125.30	126.15	123.50	123.50	W.Q. FILTER BAG INSERT

CONSTRUCTION SEQUENCE: ⚠1

1. PRE-CONSTRUCTION MEETING. CONTACT GREGG EATON AT 360-403-3527.
2. FLAG OR FENCE CLEARING LIMITS.
3. POST NOTICE OF CONSTRUCTION ACTIVITY SIGN WITH NAME AND PHONE NUMBER OF ESC SUPERVISOR.
4. INSTALL CATCH BASIN PROTECTION IF REQUIRED.
5. GRADE AND INSTALL CONSTRUCTION ENTRANCE(S).
6. INSTALL PERIMETER PROTECTION (SILT FENCE, BRUSH BARRIER, ETC.).
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13. STABILIZE ALL AREAS THAT REACH FINAL GRADE WITHIN SEVEN DAYS.
14. SEED OR SOD ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.
15. UPON COMPLETION OF THE PROJECT, ALL DISTURBED AREAS MUST BE STABILIZED AND BEST MANAGEMENT PRACTICES REMOVED IF APPROPRIATE.

CITY OF ARLINGTON
AS-BUILT CONSTRUCTION DRAWING
REVIEW ACKNOWLEDGMENT

THIS AS-BUILT PLAN SHEET HAS BEEN REVIEWED AND ACCEPTED AS A RECORD DRAWING. THE LICENSED DESIGN ENGINEER WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET ASSUMES FULL AND COMPLETE RESPONSIBILITY FOR THE ACCURACY THEREIN.

BY: ______ CITY ENGINEER

DATE: / /
THIS APPROVAL VALID FOR 18 MONTHS

[Professional Engineer stamp: DAN R. PARRENT, STATE OF WASHINGTON, 30764, REGISTERED PROFESSIONAL ENGINEER] 7/17/06
EXPIRES 6/20/08

FILE #: MN-03-031

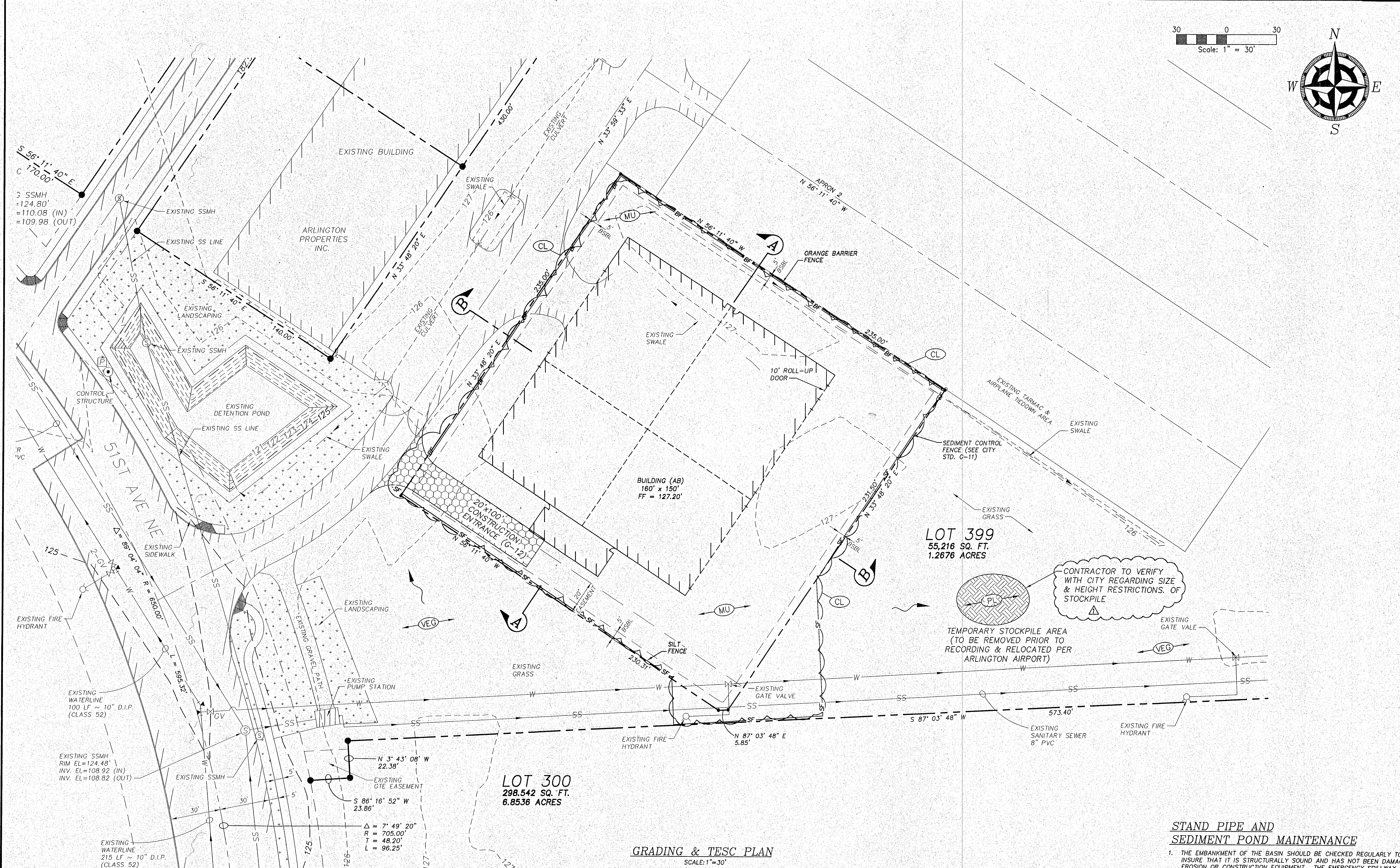
PERCO
ENGINEERING P.C.
(PROFESSIONAL SERVICES CORP.)
9920 - 271st ST. NW
STANWOOD, WASH. 98292
PHONE: (360) 629-6710

REV. NO.	DESCRIPTION	INITIALS	DATE
1	CITY REVISIONS	MNF	7/22/03

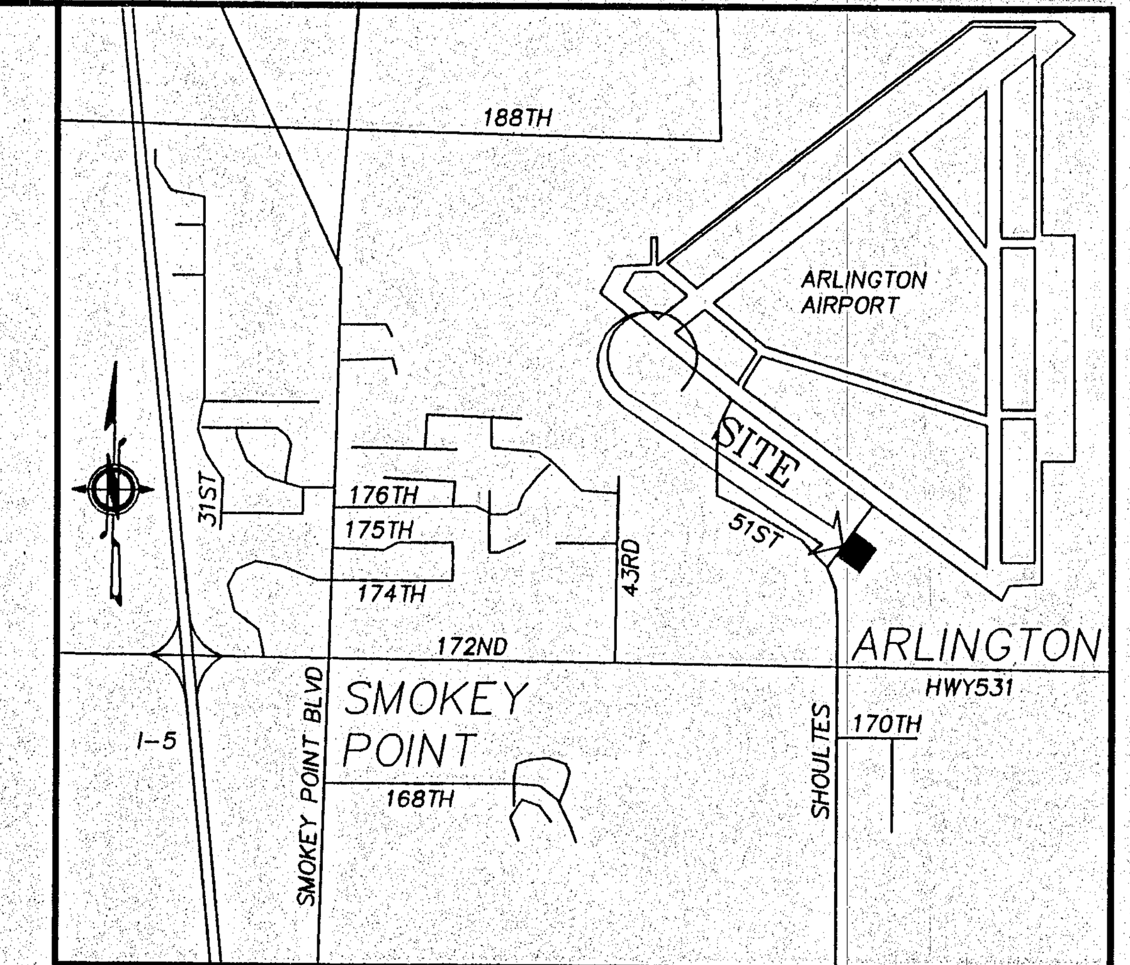
ROAD & STORM PLAN
FOR
W. NEAL KARMAN

design	DRP
drawn	MNF
app'v'd'	
date	6-20-03
dwg.	2 OF 8
scale	1" = 30'
job no.	22081

File Name: C:\jobs\karman\karman.DWG



GRADING & TESC PLAN
SCALE: 1"=30'



VICINITY MAP
SCALE 1" = 2,000 FT.

LEGEND

EXISTING	PROPOSED	
		STORM DRAIN CATCH BASIN (CB)
		TYPE 1L W/ OIL WATER SEPARATOR (SDMH)
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	W	WATER LINE
	BSBL	BUILDING SETBACK LINE
	N 90° 0' 00" W	PROPERTY LINE
	X	FENCE LINE
		CULVERT
		EDGE OF PAVEMENT

TESC DETAIL TABLE

CL	CLEARING LIMITS
MU	MULCH &/OR STRAW MATTING
ST.	SEDIMENT TRAP
BZ	BUFFER ZONE
IDS	INTERCEPTOR DIKE & SWALE
IT	INTERCEPTOR TRENCH W/ ROCK CHECK DAM & HAYBALES
PL	PLASTIC COVER
VEG	PRESERVE NATIVE VEGETATION
	TEMPORARY CONSTRUCTION ENTRANCE
BF	ORANGE BARRIER FENCE
SF	SILT FENCE

GRADING QUANTITIES:

CUT: 1,051 Cu.Yds.
FILL: 64 Cu.Yds.

(GRADING QUANTITIES ARE ROUGH CALCULATIONS WHICH DO NOT ACCOUNT FOR SOIL SWELLING & SHRINKAGE.)

1.) CUT MAY BE SPREAD ON SITE WITH THE EXCEPTION OF THE DRAINFIELD & RESERVE AREAS.

2.) ANY SOIL REMOVED FROM THE SITE MUST BE HAULED TO A COUNTY APPROVED SITE.

STAND PIPE AND SEDIMENT POND MAINTENANCE

1. THE EMBANKMENT OF THE BASIN SHOULD BE CHECKED REGULARLY TO INSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT. THE EMERGENCY SPILLWAY SHOULD BE CHECKED REGULARLY TO INSURE THAT ITS LINING IS WELL ESTABLISHED AND EROSION-RESISTANT. THE SILTATION BASIN SHOULD BE CHECKED AFTER EACH RUNOFF-PRODUCING RAINFALL FOR SEDIMENT CLEAN OUT. WHEN THE SEDIMENT REACHES THE CLEAN OUT LEVEL, IT SHALL BE REMOVED AND PROPERLY DISPOSED.

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344

1	CITY REVISIONS	MNF	7/22/03
REV. NO.	DESCRIPTION	INITIALS	DATE

UTILITY CONFLICT NOTE:
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C OF ARLINGTON

THIS SHEET HAS BEEN APPROVED PER CONDITIONS ON THE COVER SHEET.

CONSTRUCTION	AS-BUILT ACKNOWLEDGMENT
BY: ______ CITY ENGINEER	BY: [signature] CITY ENGINEER
DATE: __ / __ / __	DATE: 8 / 10 / 06

CITY OF ARLINGTON AS-BUILT CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

THIS AS-BUILT PLAN SHEET HAS BEEN REVIEWED AND ACCEPTED AS A RECORD DRAWING. THE LICENSED DESIGN ENGINEER WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET ASSUMES FULL AND COMPLETE RESPONSIBILITY FOR THE ACCURACY THEREIN.

BY: ______ CITY ENGINEER

DATE: __ / __ / __

THIS APPROVAL VALID FOR 18 MONTHS

7/17/06

DAN R. BARRETT — STATE OF WASHINGTON — 30764 — REGISTERED PROFESSIONAL ENGINEER

EXPIRES 6/20/08

FILE #: MN-03-031

PERCO ENGINEERING P.C.
(PROFESSIONAL SERVICES CORP.)
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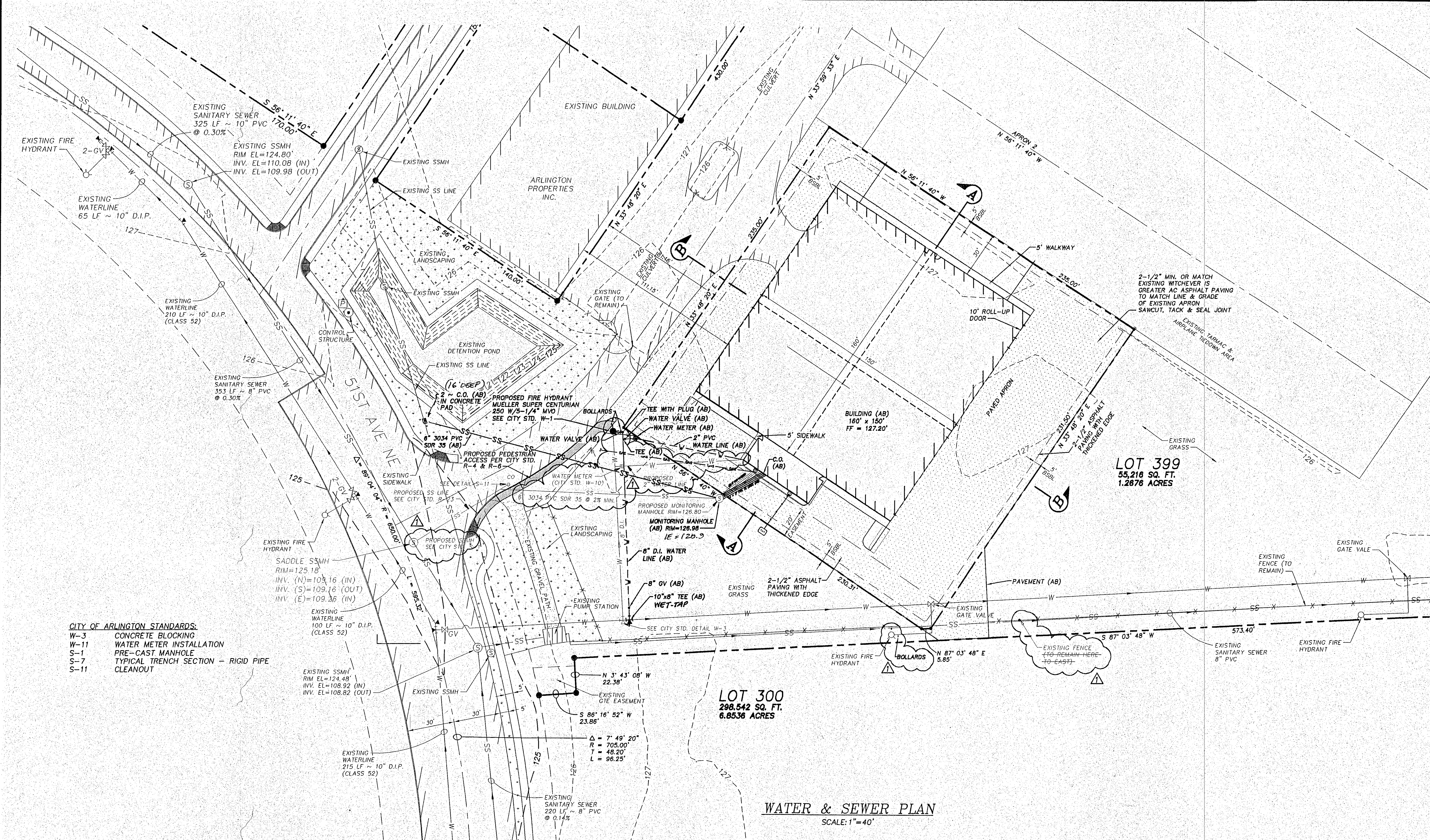
STANWOOD, WASH. 98292
PHONE: (360) 629-6710

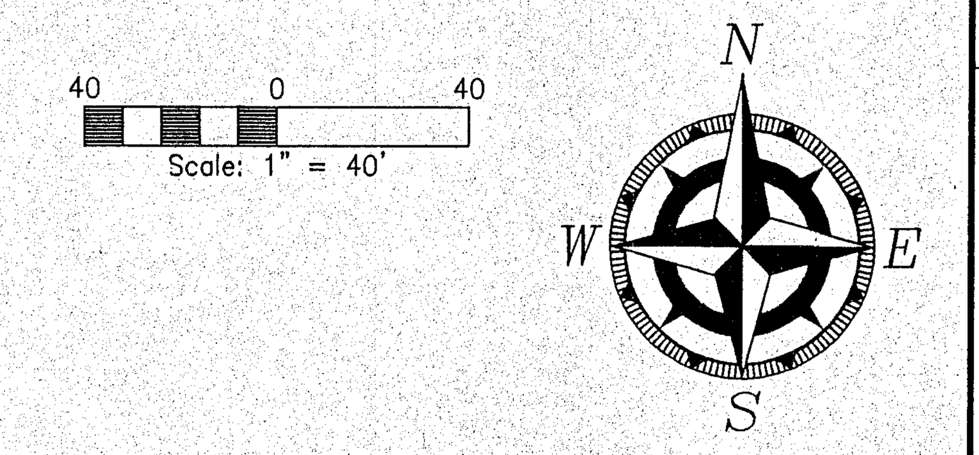
GRADING & TESC PLAN FOR W. NEAL KARMAN

design	DRP
drawn	MNF
app'v'd'	
date	6-20-03
dwg.	3 OF 8
scale	1" = 30'
job no.	22081

File Name: C:\jobs\karman\karman.DWG

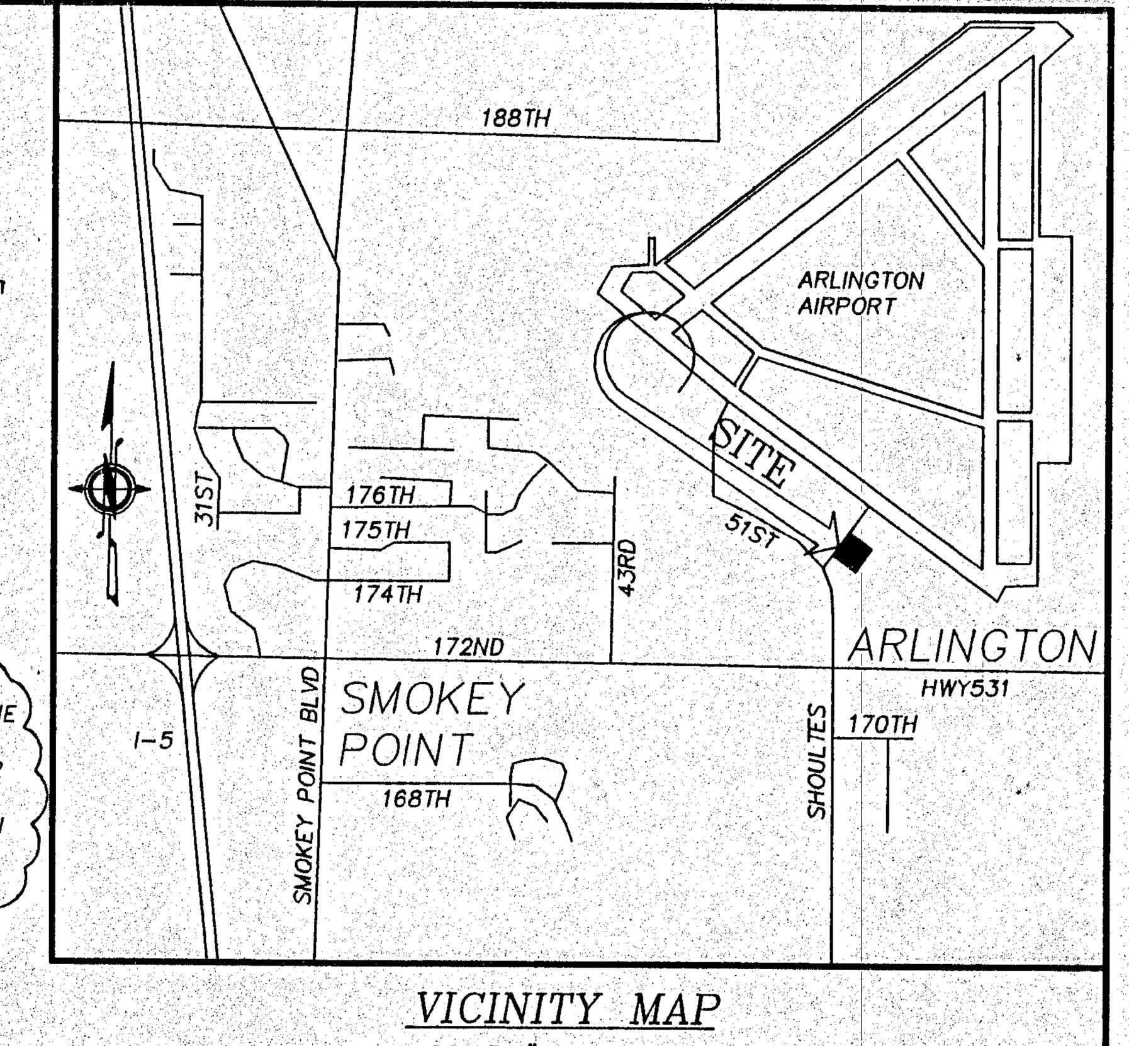


WATER & SEWER PLAN
SCALE: 1"=40'



NOTES:
1. THE MARKING POST FOR THE STUB OUT OF THE MONITORING MANHOLE SHALL BE A 2x4 EXTENDING 4' ABOVE GRADE WITH A 2" CLEAT AT THE BOTTOM TO PREVENT REMOVAL.
2. 3/8" PEA GRAVEL IS REQUIRED FOR BEDDING OF ALL SANITARY SEWER PIPES 4" BELOW THE PIPE AND 12" ABOVE THE PIPE.
3. THE EXISTING SANITARY FORCE MAIN IS 8" PVC AND ANY WORK WITHIN 10' OF THE FORCE MAIN WILL REQUIRE 24 HOUR NOTICE TO THE CITY OF ARLINGTON WASTEWATER DEPARTMENT, VIRGIL RENFROE AT (360) 403-3516.
4. INSTALLATION OF NEW SSMH IN 51st AVE TO BE COORDINATED WITH VIRGIL RENFROE.

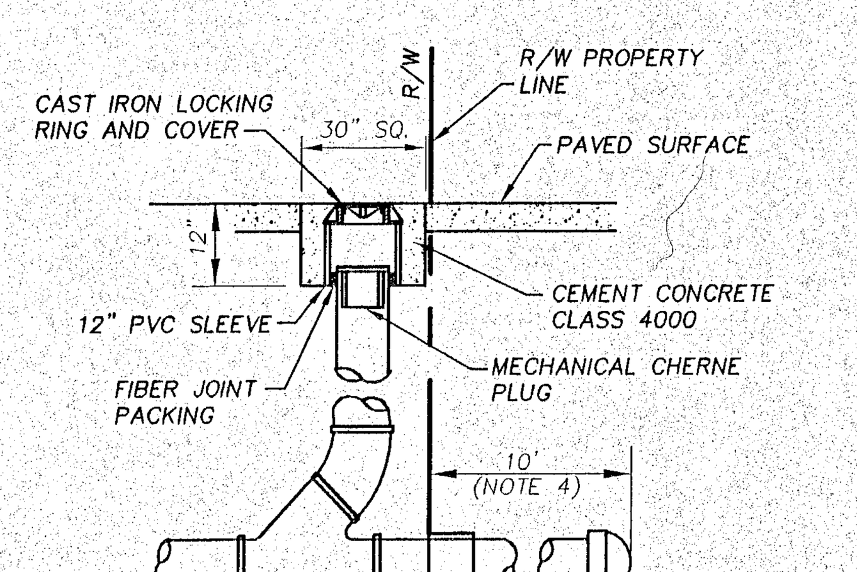
△1



VICINITY MAP
SCALE 1" = 2,000 FT.

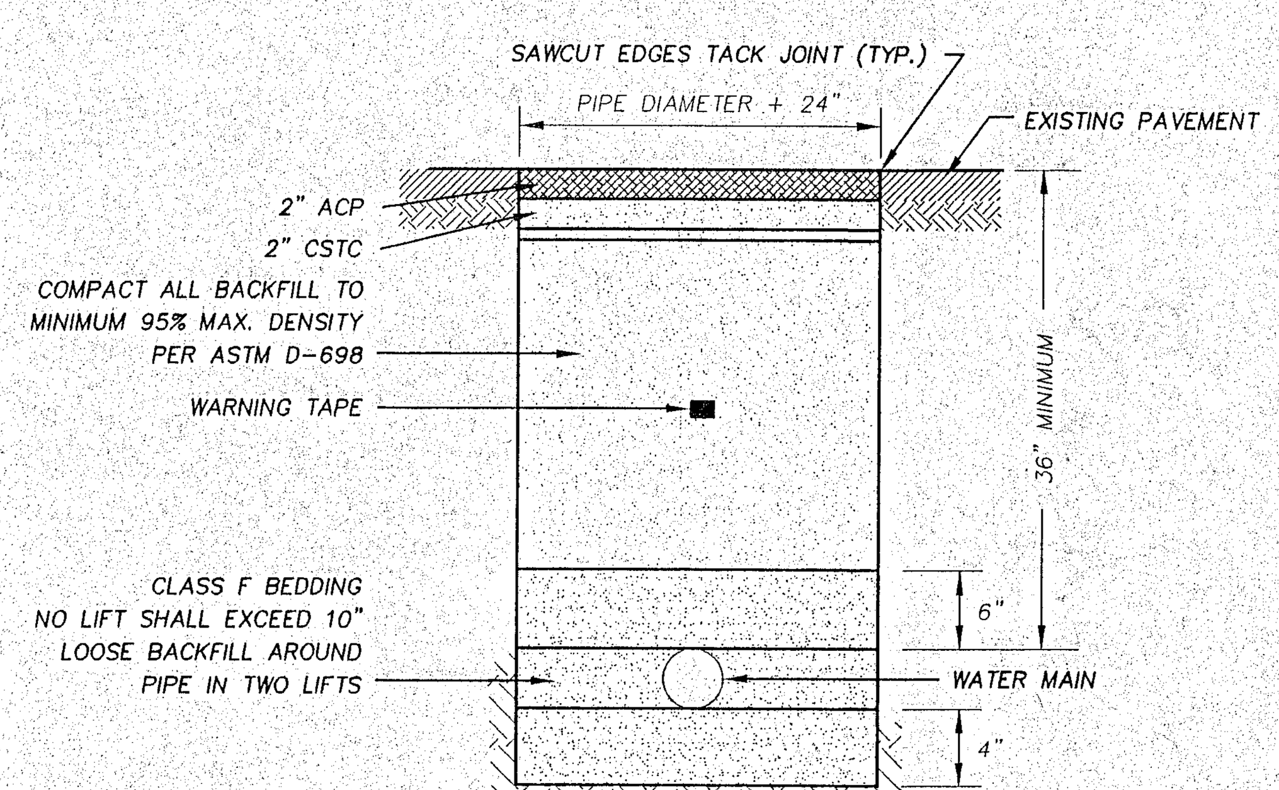
LEGEND

EXISTING	PROPOSED	
		STORM DRAIN CATCH BASIN (CB)
		TYPE 1L W/ OIL WATER SEPARATOR (SDMH)
		SANITARY SEWER MANHOLE (SSMH)
		TELEPHONE PEDESTAL
		POWER POLE
YD	YD	YARD DRAIN
WM	WM	WATER METER
GV	GV	WATER VALVE
FH	FH	FIRE HYDRANT
	℄	CENTERLINE
	FF	FINISHED FLOOR
	100.00	SPOT ELEVATION
		FLOW
		EXISTING BUILDING
		PROPOSED BUILDING
102		EXISTING CONTOUR
100		PROPOSED CONTOUR
SD		STORM DRAINAGE
SS		SANITARY SEWER
W		WATER LINE
BSBL		BUILDING SETBACK LINE
N 90° 0' 00" W		PROPERTY LINE
		FENCE LINE
		CULVERT
		EDGE OF PAVEMENT



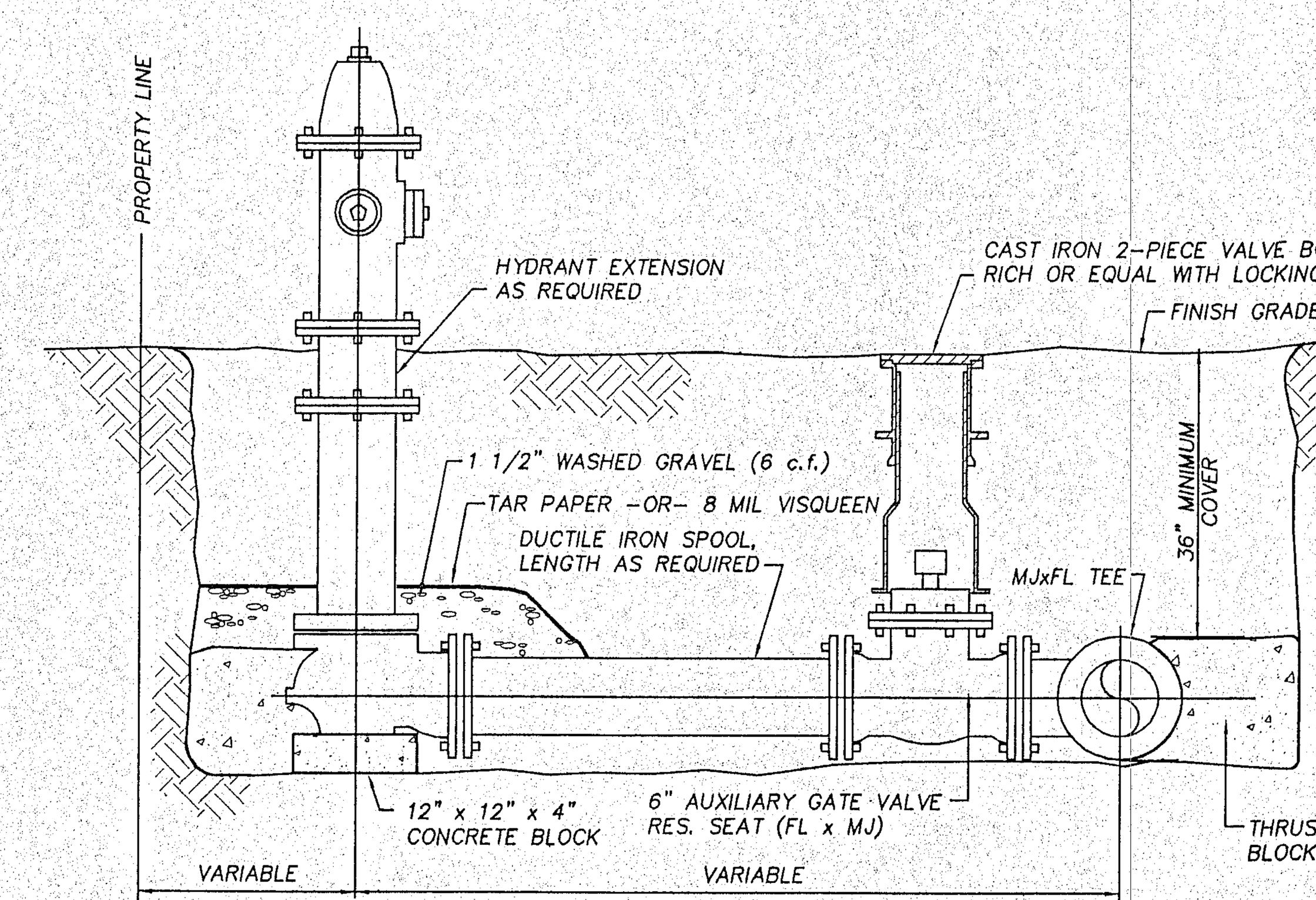
NOTES:
1. CLEAN-OUT PIPE AND FITTINGS SHALL BE PVC.
2. A SANITARY TEE OR SWEEP MAY BE INSTALLED IN LIEU OF A WYE AS SHOWN. STRAIGHT TEES ARE NOT ACCEPTABLE.
3. FOR NEW PLATS THE VERTICAL RISER PORTION OF THE CLEAN-OUT WILL BE CONSTRUCTED AT TIME OF CONNECTION TO BUILDING TO MINIMIZE DAMAGE, THE 6" WYE AND 6' PVC PIPE W/GASKETED CAPS WILL BE INSTALLED PRIOR TO BUILDING IS ACCOMPLISHED.
4. SEWER STUB WILL BE EXTENDED 10' BEYOND PROPERTY LINE TO PREVENT DAMAGE TO CLEAN-OUT AND MINIMIZE CONFLICTS WITH OTHER UTILITIES WHEN SERVICE TO BUILDING CONNECTION.
5. A PRESSURE TREATED 2"X4" STUBMARKER SHALL EXTEND DOWN TO A MIN. OF 24" BELOW GROUND. A MIN. OF 36" SHALL EXTEND ABOVE GROUND.
6. THE STUBMARKER SHALL BE PAINTED WITH WHITE TRAFFIC PAINT AND THE WORD "SEWER" AND THE DEPTH IN FEET FROM GROUND TO SEWER STUB INVERT SHALL BE PAINTED ON THE MARKER WITH 3" HIGH BLACK PAINTED LETTERS.

SEWER CLEAN-OUT
NOT TO SCALE (SEE ARLINGTON CITY STD. S-11)
△1



NOTE:
CONTRACTORS ARE REQUIRED TO MEET ALL WASHINGTON STATE DOT STANDARDS AND ________ COUNTY STANDARDS FOR TRENCH AND ASPHALT SURFACING.

WATER LINE TRENCH DETAIL
NOT TO SCALE (SEE ARLINGTON CITY STD. S-7)



NOTES:
1. PAINT HYDRANT WITH CASE YELLOW NO. X-3472.
2. DUG-LUGS JOINT RESTRAINT SYSTEM.
3. THE MJ FOLLOWERS SHALL BE MEGA LUG.
4. PAINT TIE-RODS WITH BITUMINOUS PAINT ACCORDING TO APWA STANDARDS, SPECIFICATION #77-3.02A.
5. INSTALL BLUE PAVEMENT MARKER IF HYDRANT IS IN RIGHT-OF-WAY.
6. RED HEAD 5" STORZ TO 4-1/2 NST FEMALE ADAPTER STYLE NO. S-37-MF-L-STORZ METALFACE OR EQUAL WITH A METALFACE CAP STYLE NO. SC-MF OR EQUAL.
7. THE DISTANCE BETWEEN THE NEAREST POINT OF THE HYDRANT AND TRAFFIC OF THE FACE OF THE CURB SHALL BE A MINIMUM OF 24".

HYDRANT INSTALLATION
NOT TO SCALE (SEE ARLINGTON CITY DETAIL W-1)
△1

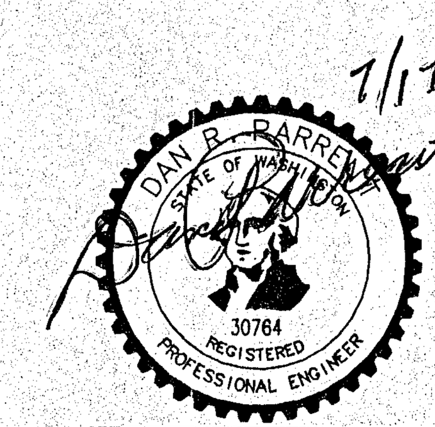
CALL 48 HOURS
BEFORE YOU DIG
1-800-553-4344

FILE #: MN-03-031

CITY OF ARLINGTON
THIS SHEET HAS BEEN APPROVED PER CONDITIONS ON THE COVER SHEET.

CONSTRUCTION	AS-BUILT ACKNOWLEDGMENT
BY: ________ CITY ENGINEER	BY: [signature] CITY ENGINEER
DATE: __/__/__	DATE: 8/10/06

7/17/06



EXPIRES 6/20/08

CITY OF ARLINGTON
AS-BUILT CONSTRUCTION DRAWING
REVIEW ACKNOWLEDGMENT

THIS AS-BUILT PLAN SHEET HAS BEEN REVIEWED AND ACCEPTED AS A RECORD DRAWING. THE LICENSED DESIGN ENGINEER WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET ASSUMES FULL AND COMPLETE RESPONSIBILITY FOR THE ACCURACY THEREIN.

BY: ________ CITY ENGINEER

DATE: __/__/__
THIS APPROVAL VALID FOR 18 MONTHS

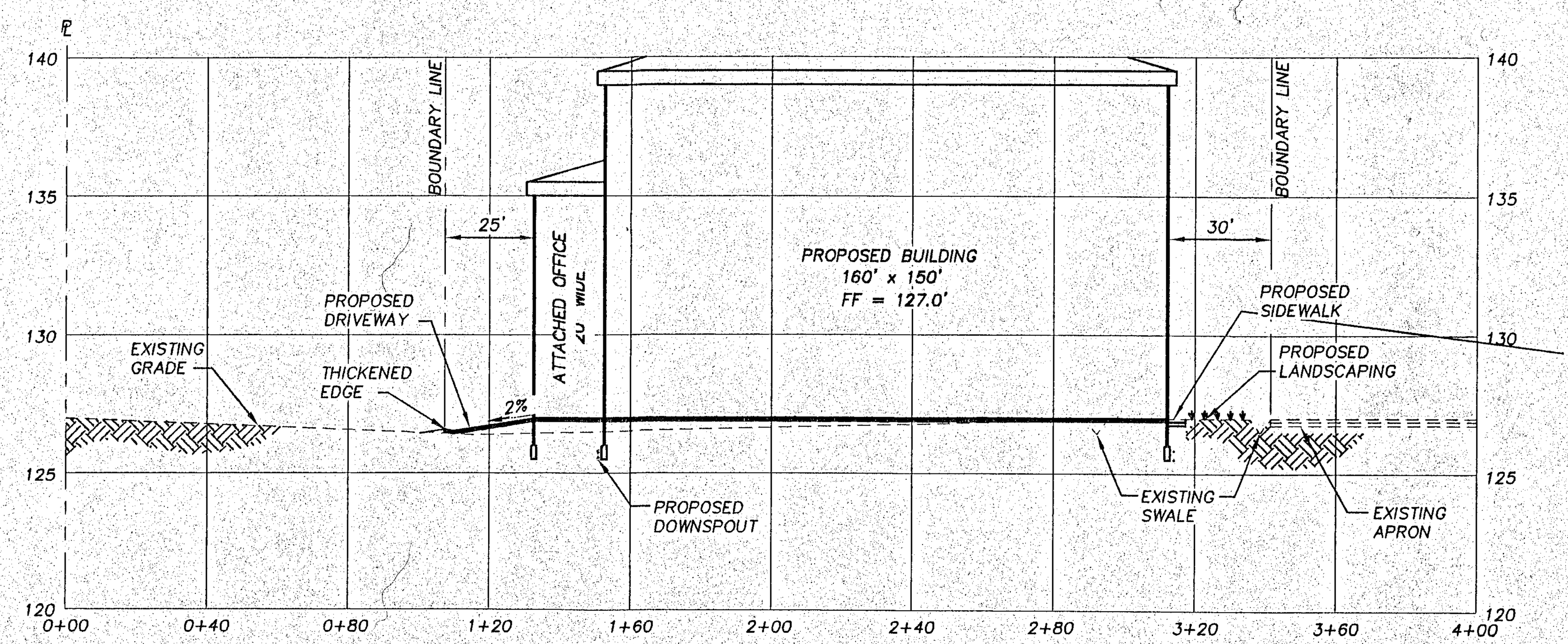
REV. NO.	DESCRIPTION	INITIALS	DATE
1	CITY REVISIONS	MNF	7/22/03

PERCO
ENGINEERING P.C.
(PROFESSIONAL SERVICES CORP.)
9920 - 271st ST. NW
STANWOOD, WASH. 98292
PHONE: (360) 629-6710

WATER & SEWER PLAN
FOR
W. NEAL KARMAN

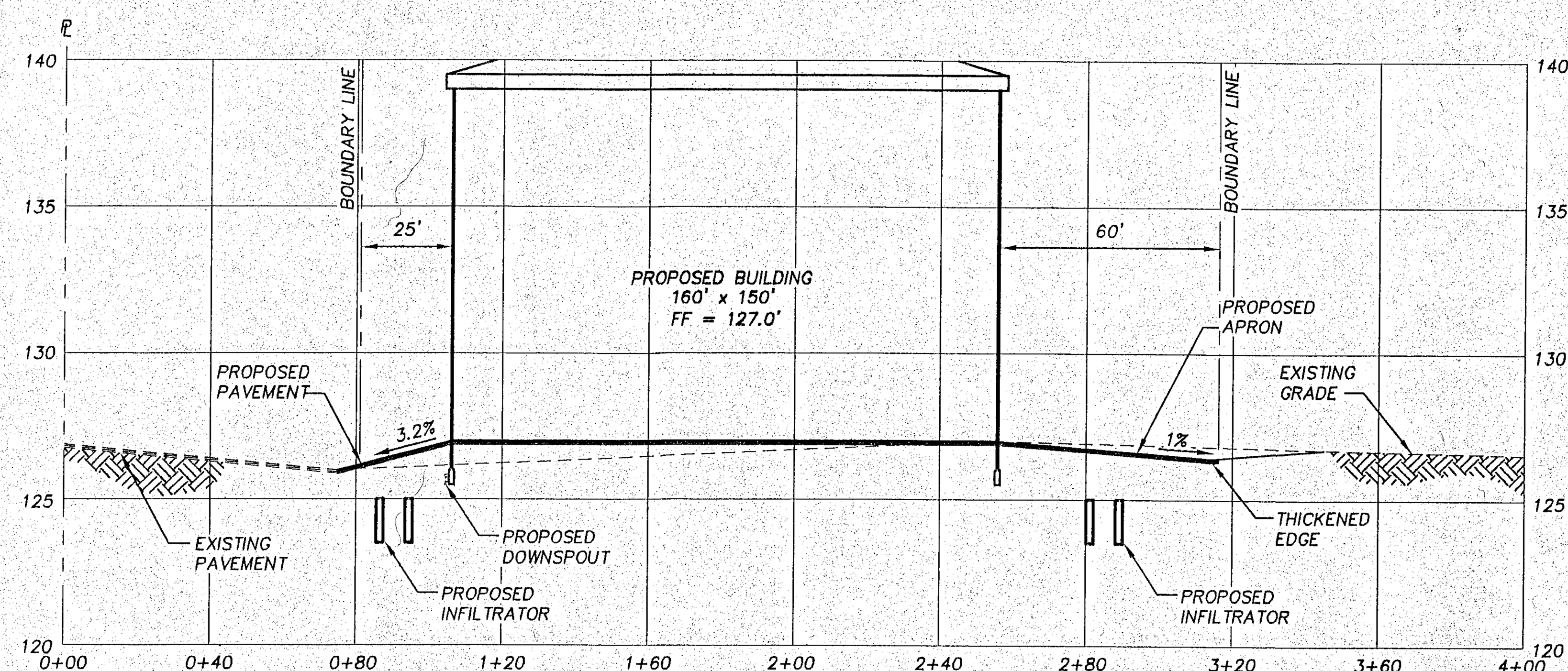
design	DRP
drawn	MNF
app'v'd	
date	6-20-03
dwg.	4 OF 8
scale	1" = 40'
job no.	22081

File Name: C:\Jobs\karman\karman.DWG



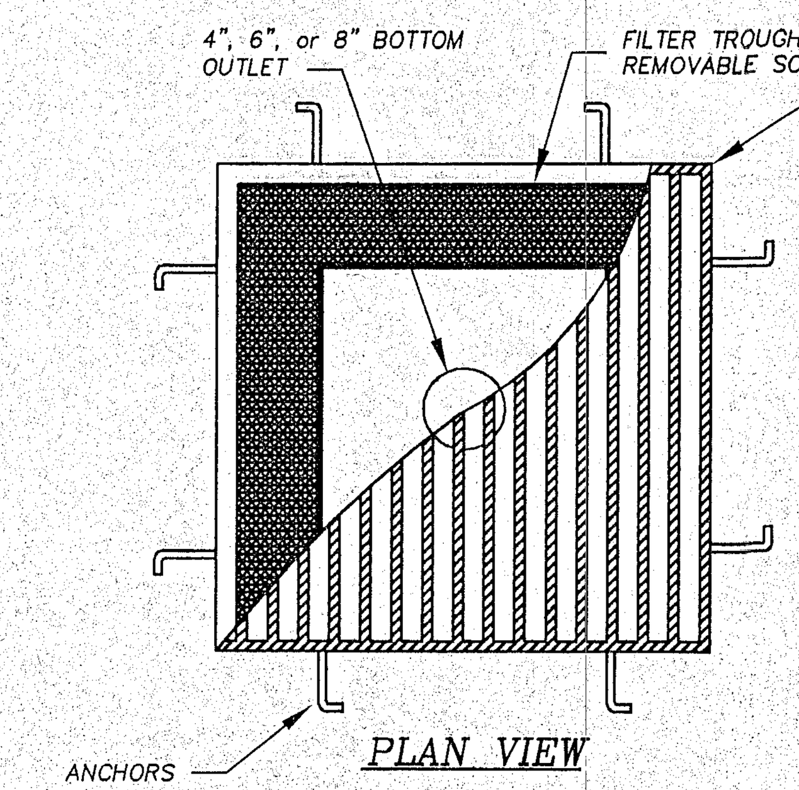
PROFILE A–A

SCALE: HORIZONTAL 1"=40'
VERTICAL 1"=5'



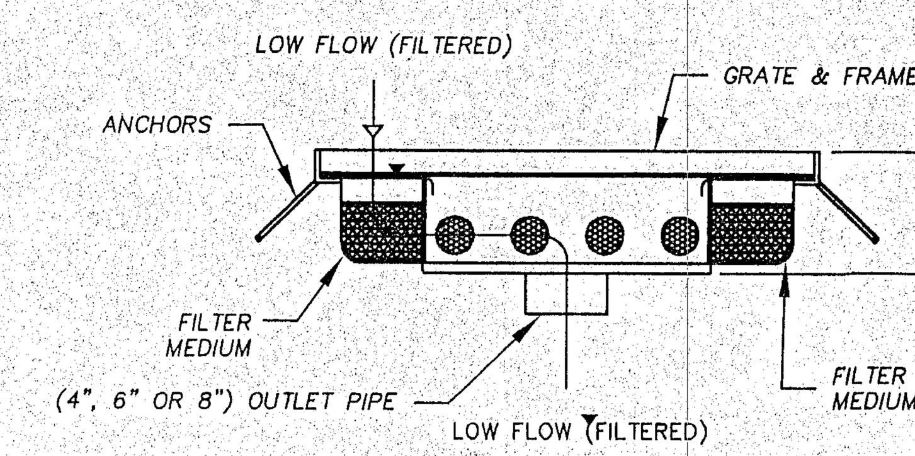
PROFILE B–B

SCALE: HORIZONTAL 1"=40'
VERTICAL 1"=5'



PLAN VIEW

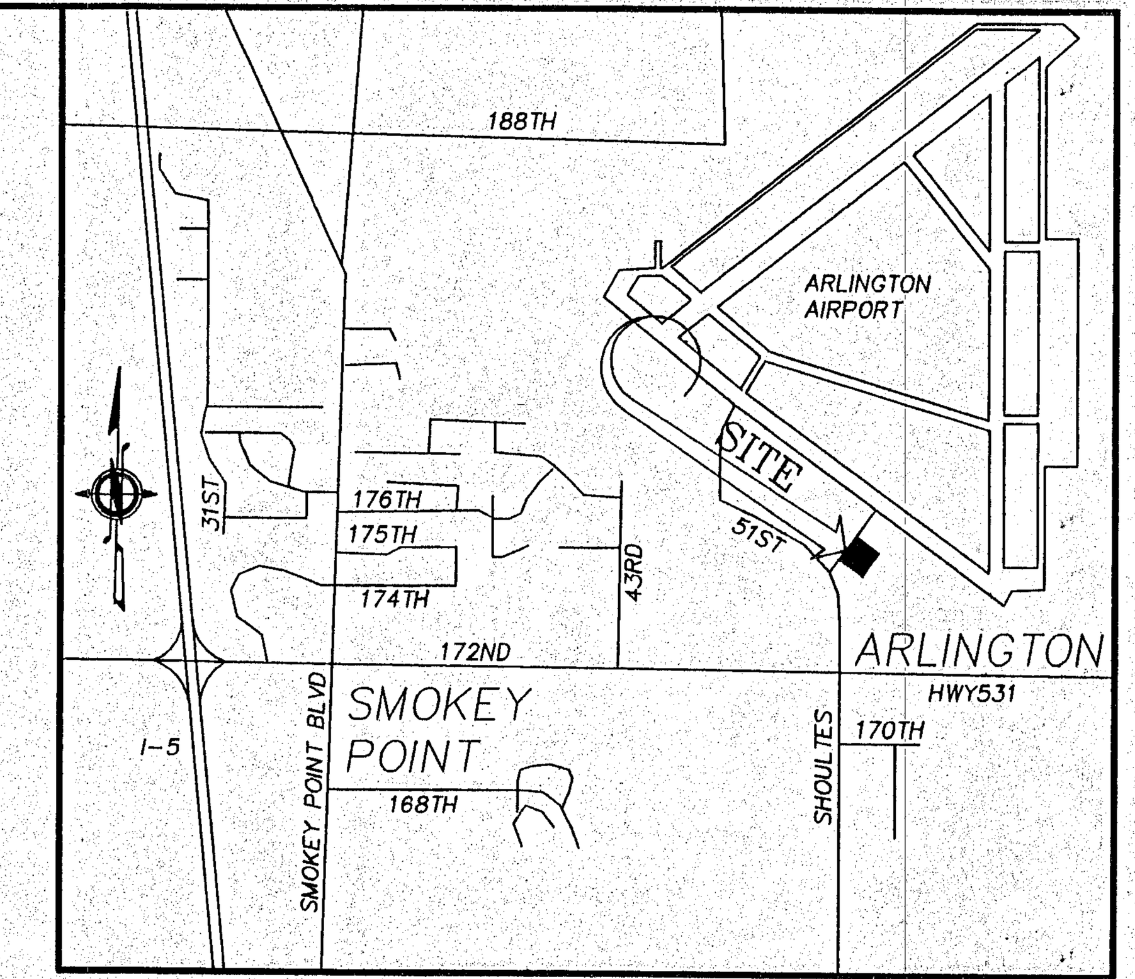
NOTES:
1. Catch basin/filter body shall be one piece construction. molded from petroleum resistant fiberglass which meets or exceeds PS 15–69.
2. Grate and frame shall be fabricated steel, hot dipped galvanized in accordance with ASTM A–123.
3. Grate shall have maximum spacing between bearing bars of 1/2" in accordance with ADA requirements and shall be secured with locking bolts.
4. Grate shall be designed for H20 wheel loading.
5. Filter screen and screen frame shall be stainless steel (Type 304).
6. Catch basin may be specified with 4", 6", or 8" bottom outlet.
7. Filter medium shall be Fossil Rock™, installed and maintained in accordance with manufacturer recommendations.



SECTION VIEW

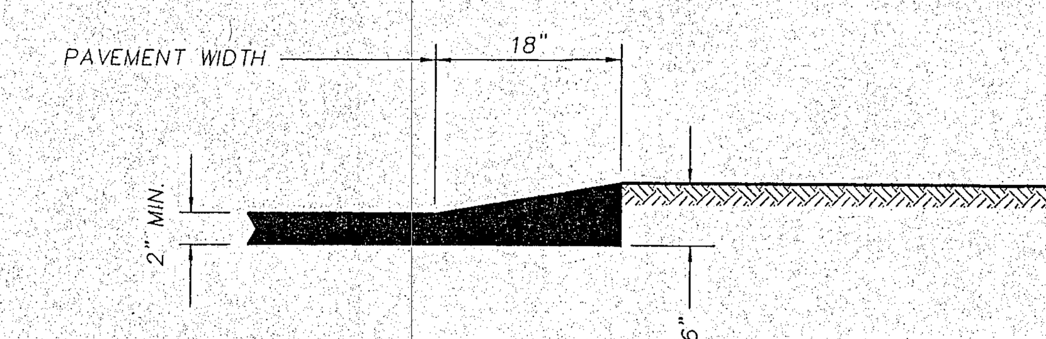
FOSSIL FILTER MODEL FB–24 CATCH BASIN

(WITH BOTTOM OUTLET)
SCALE: NONE



VICINITY MAP

SCALE 1" = 2,000 FT.

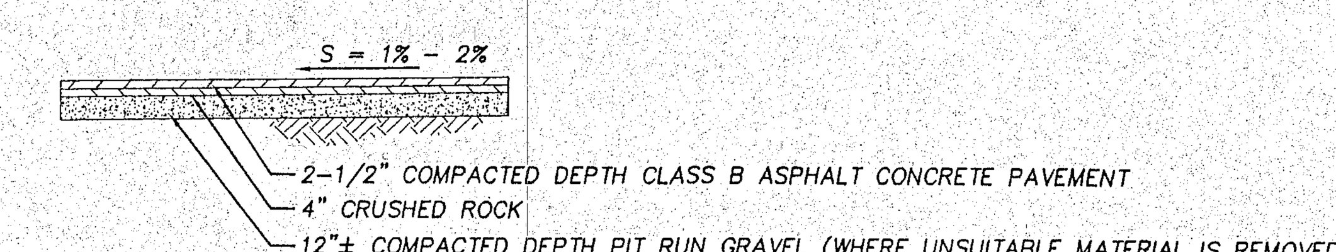


ASPHALT THICKENED EDGE (TYP.)

NOT TO SCALE

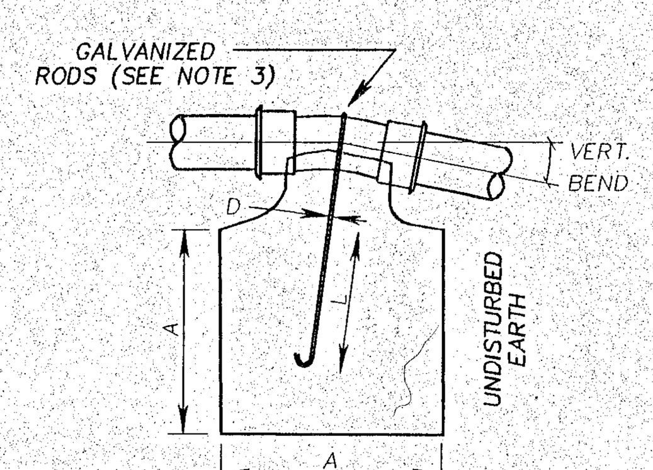
REFER TO ARLINGTON CITY STD:

R–4	CEMENT CONCRETE CURB AND GUTTER
R–6	CEMENT CONCRETE SIDEWALK
R–22	EXTRUDED CONCRETE CURB
R–23	PAVEMENT PATCHING DETAILS

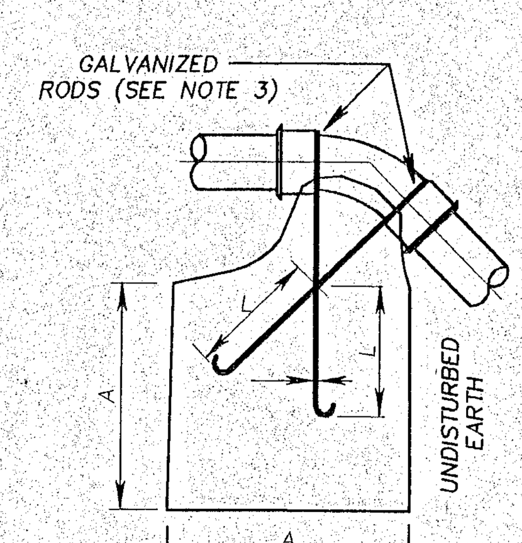


TYPICAL PAVEMENT PAVING SECTION

NOT TO SCALE



VERTICAL BLOCKING
11 1/4° & 22 1/2° BENDS



VERTICAL BLOCKING
FOR 45° BENDS

VERTICAL BLOCKING W/RESTRAINED JOINTS SOIL TYPE = COHESIVE GRANULAR [GC+SC] SAND, GRAVEL, CLAY MIXTURE					
PIPESIZE	V B	CU FT	A	D	L
4"	11 1/4°	*			
	22 1/2°	*			
	45°	*			
	90°	16	2.5'	3/4"	2.0'
6"	11 1/4°	*			
	22 1/2°	*			
	45°	13	2.3'	3/4"	2.0'
	90°	43	3.5'	3/4"	2.0'
8"	11 1/4°	*			
	22 1/2°	*			
	45°	33	3.2'	3/4"	2.0'
	90°	86	4.4'	3/4"	2.0'
10"	11 1/4°	*			
	22 1/2°	13	2.3'	3/4"	2.0'
	45°	64	4.0'	3/4"	2.0'
	90°	141	5.2'	1"	3.5'
12"	11 1/4°	*			
	22 1/2°	20	2.7'	3/4"	2.0'
	45°	111	4.8'	3/4"	2.0'
	90°	206	5.9'	1 1/8"	4.0'

WATER MAIN
VERTICAL THRUST BLOCKING

NO SCALE (SEE ARLINGTON CITY STD. W–3 & W–4)

CITY OF ARLINGTON

THIS SHEET HAS BEEN APPROVED PER CONDITIONS ON THE COVER SHEET.

CONSTRUCTION	AS–BUILT ACKNOWLEDGMENT
BY: ______ CITY ENGINEER	BY: [signature] CITY ENGINEER
DATE: __/__/__	DATE: 8/10/06

CITY OF ARLINGTON
AS–BUILT CONSTRUCTION DRAWING
REVIEW ACKNOWLEDGMENT

THIS AS–BUILT PLAN SHEET HAS BEEN REVIEWED AND ACCEPTED AS A RECORD DRAWING. THE LICENSED DESIGN ENGINEER WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET ASSUMES FULL AND COMPLETE RESPONSIBILITY FOR THE ACCURACY THEREIN.

BY: ______ CITY ENGINEER

DATE: __/__/__ THIS APPROVAL VALID FOR 18 MONTHS

REV. NO.	DESCRIPTION	INITIALS	DATE
1	CITY REVISIONS	MNF	7/22/03

7/17/06

FILE #: MN–03–031

CALL 48 HOURS BEFORE YOU DIG 1–800–553–4344

DAN R. PARENT
STATE OF WASHINGTON
30764
REGISTERED PROFESSIONAL ENGINEER
EXPIRES 6/20/06

PERCO
ENGINEERING P.C.
(PROFESSIONAL SERVICES CORP.)
9920 – 271st ST. NW
STANWOOD, WASH. 98292
PHONE: (360) 629–6710

PROFILES
FOR
W. NEAL KARMAN

design	DRP
drawn	MNF
app'v'd	
date	6–20–03
dwg.	5 OF 8
scale	AS SHOWN
job no.	22081

File Name: C:\Jobs\karman\karman.DWG

GRADING AND EROSION CONTROL METHODS OF CONSTRUCTION

1. GENERAL:
The erosion/sedimentation control facilities shall be constructed prior to any grading or extensive land clearing. In accordance with the approved grading and temporary erosion/sedimentation control plan. These facilities must be satisfactorily maintained until construction and landscaping is completed and the potential for onsite erosion has passed. All paved areas shall be graded to have positive drainage to, collection conveyance systems or overland sheet drain areas at a minimum of one percent slopes.

2. NONE

3. TEMPORARY GRAVEL CONSTRUCTION ENTRANCE:
Aggregate: 4" to 8" quarry spalls
Entrance dimensions: The aggregate layer must be at least one foot thick. It must extend the full width of the vehicular ingress and egress area. The length of the entrance must be at least 50 feet.
Installation: The area of the entrance should be cleared of all vegetation and roots. The quarry spalls shall be placed to the specified dimensions. Any drainage facilities required because of washing should drain to an approved sediment control facility. If wash racks are used, they should be installed according to manufacturer's specifications.
Maintenance: The entrance shall be maintained in a condition which will prevent tracking or flow of mud onto public right-of-way. This may require periodic top dressing with 2" stone as conditions demand. All materials dropped, washed or tracked from vehicles onto the roadway or into storm drains, must be removed immediately.

4. FILTERING DEVICES:
Filtering devices, such as filter fabric fences, shall be used to filter runoff prior to discharge from site. See Standard Plan. Approved filter fabrics are Celanese fiber, polyvinyl chloride woven cloth, reinforced chlorosulfinated polyethylene cloth, chlorinated polyethylene woven cloth, such as Mirafi 100 X, Typar 3401, Stabilenka 100, or approved equal.

5. FLEXIBLE DOWN DRAINS:
Flexible down drains may be utilized as temporary structures to protect open slopes and shall be constructed of flared end sections connection by plastic sheet tubing, heavy duty fabric, or non-perforated corrugated plastic pipe. See Standard Plan.

6. TEMPORARY SOIL STABILIZATION MEASURES:
Soil stabilization measures protect soil from the erosive forces of raindrop impact and flowing water. Acceptable measures include establishing vegetation by sodding or seeding, mulching with 2 tons of straw per acre or approved equal, plastic or other impervious covering staked to the ground or anchored with rocks or sandbags, and the early application of gravel base on areas to be paved.
The most appropriate measure should be chosen given the time of the year and the site conditions. Seeding alone is acceptable only on flat areas and slopes less than 25% only during the periods approved by the City Engineer. Mulch may need to be held in place by utility mesh or netting. Hydroseeding is generally the required minimum.

7. TEMPORARY SILTATION/SEDIMENTATION PONDS:
Temporary siltation/sedimentation ponds shall be required of all land alteration operations in order to detain runoff waters and trap sediment from credible areas thus protecting properties, drainage ways and streams below the installation from damage by excessive sedimentation and debris deposition. The dam or barrier forming the pond shall be located to provide for maximum volume capacity for trapping sediment behind the structure as well as for greatest ease of clean out. The temporary pond requirement may be waived, at the discretion of the city engineer, for small areas of land disturbance where potential damage is minimal and pond construction impractical as long as runoff from all such areas is filtered prior to discharge from the site through a sediment trap. (see 8 – Sediment Traps)
Temporary siltation/sedimentation ponds are basins created by construction of a barrier or by excavation or by a combination of both.
Interior surfaces of the sedimentation pond shall be stabilized where required to prevent erosion of the pond bottom and/or sides.
Interior sides of the pond shall be no steeper than 3 feet horizontal to 1 foot vertical. Siltation/sedimentation ponds shall provide a minimum of 2 feet of dead storage below the outflow elevation and will be sized to provide a minimum of 1 cubic foot of live storage per 100 square feet of tributary area.
A stabilized access will be provided to the siltation/sedimentation pond for sediment removal and other maintenance.
Temporary sediment ponds shall be maintained. The embankment of the basin shall be checked regularly to insure that it is structurally sound and has not been damaged by erosion or construction equipment. The emergency spillway should be checked regularly to insure that it's lining is well established and erosion-resistant. The siltation basin shall be checked after each runoff-producing rainfall. Sediment shall be removed and properly disposed of, as required.

8. SEDIMENT TRAPS:
Sediment traps are structures of limited capacity designed to create a temporary siltation filter around storm drain inlets or at points where silt laden stormwater is discharged. Periodic maintenance by the contractor or developer is crucial to the proper functioning of sediment traps. Examples of typical sediment trap installations are found in the Standard Plans.
Sediment traps may be constructed of straw bale barriers, siltation fence and gravel, gravel dams, or some combination of the above. Placement of filter fabric under the grate of a catch basin is not an acceptable method of inlet protection.
Straw bale barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Close attention shall be paid to the repair of damaged bales, end runs and undercutting beneath bales. Necessary repairs to barriers or replacement of bales shall be accomplished promptly. Sediment deposits should be removed after each rainfall. They must be removed when the level of disposition reaches approximately one half the height of the barrier. Any sediment deposits remaining in place after the straw bale barrier is no longer required shall be dressed to conform to the existing grade, prepared and seeded.

9. SEEDING AND RESTORATION:
Areas disturbed by construction activity which are not to be covered by permanent impervious surfaces shall be landscaped or reseeded at the earliest possible time, not to exceed 15 days after final grade is reached during the period of June 1 to August 31. During the rest of the year, landscaping or reseeding is required within 7 days of reaching final grade.
In any work area which has been stripped of vegetation and where no further work is anticipated for a period of 30 days or more or determined by the city Engineer to have the potential of severe erosion or sedimentation, disturbed areas must be immediately stabilized by mulching, hydroseeding, or other approved erosion control measure applicable to the time of year in question. Grass seeding alone will be acceptable only during the months of April through September inclusive. Seeding may proceed wherever it is in the interest of the permittee, but must be augmented with mulching, netting, or other measures approved by the City of Arlington, outside the specified time period.
Seed Mixture
The seed mixture and rate of application shall be as follows:

Seed Mixture. (Highway Mix) Kind and Variety of Seed In Mixture	Percent by Weight
Colonial Bentgrass (Highlands or Astoria)	10
Red Fescue (Illahee, Ranier or Pennlawn)	40
Perennial Rye	40
White Dutch Clover	10

Seed In Mixture (Lawn Seed Mix) Kind and Variety of Seed In Mixture	Percent by Weight
Red Creeping Fescue	45
Chewings Fescue	30
Kentucky Bluegrass	15
Highland Colonial Bentgrass	10

The rate of application shall be 4 pounds per 1,000 square feet. No noxious weeds will be permitted. The seed mixture shall be no less than 98% pure, and shall have a minimum germination rate of 90%.
Fertilizer:
Fertilizer shall be a standard commercial grade of organic or inorganic fertilizer of the kind and quality specified herein. It may be separate or in a mixture containing the percentage of total nitrogen, available phosphoric acid and water soluble potash in the amounts specified. All fertilizers shall be furnished in standard unopened containers with weight, name of plant nutrients and manufacturer's guaranteed statement of analysis clearly marked, all in accordance with State and Federal laws.
Acceptable commercial fertilizer may be supplied in one of the following forms:
A. A dry free-flowing granular fertilizer suitable for application by agricultural fertilizer spreader.
B. A soluble fertilizer ground to a fineness that will permit complete suspension of insoluble particles in water, suitable for application by power sprayer.
C. A granular or pelleted fertilizer, suitable for application by blower equipment.
D. A non-volatile liquid fertilizer.
Fertilizer shall be standard commercial grade of formulation. Fifty percent of the nitrogen shall be derived from 38 ureaformaldehyde and applied at the rate of 12 pounds per 1,000 square feet.

Mulch:
Wood Cellulose fiber mulch shall be specially processed wood fiber containing no growth or germination inhibiting factors and shall be dyed a suitable color to facilitate inspection of the placement of the material. It shall be manufactured in such a manner that after addition and agitation in slurry tanks with water, the fibers in the material will become uniformly suspended to form a homogenous slurry. When hydraulically sprayed on the ground, the material shall allow the absorption and percolation of moisture.
Each package of the cellulose fiber shall be marked by the manufacturer to show the air dry weight content.
Wood cellulose fiber shall be applied at the rate of 60 pounds per 1,000 square feet.

ENGINEER'S GRADING SPECIFICATIONS

1. SITE SOILS ARE CONSIDERED MOISTURE SENSITIVE AND ARE SUSCEPTIBLE TO DISTURBANCE BY CONSTRUCTION EQUIPMENT, PARTICULARLY DURING WET WEATHER. THE GRADING CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO LIMIT SURFACE DISTURBANCE AND TO PROTECT THE SITE GRADING AREA FROM EXCESSIVE EROSION.
2. AREAS TO RECEIVE FILL SHALL BE CLEARED OF ALL VEGETATION AND DELETERIOUS MATERIAL.
3. AREAS TO RECEIVE FILL SHALL BE PROOF ROLLED. ALL LOOSE OR SOFT AREAS SHALL BE REMOVED AND REPLACED WITH STRUCTURAL FILL.
4. ALL FILL MATERIALS SHALL BE FREE OF VEGETATION AND DELETERIOUS MATERIAL AND SHALL NOT CONTAIN ROCKS GREATER THAN SIX INCHES IN DIAMETER.
5. STRUCTURAL FILLS SHALL BE PLACED IN 6"-8" THICK LOOSE HORIZONTAL LIFTS AND SPREAD UNIFORMLY. AFTER EACH LIFT HAS BEEN PLACED AND SPREAD EVENLY, STRUCTURAL FILL SHALL BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DENSITY BY MODIFIED PROCTOR TEST (ASTM D-1557-70).
6. NON-STRUCTURAL FILL MAY BE COMPACTED TO 85-90% PROCTOR.
7. THE SURFACE OF ALL SLOPES SHALL BE COMPACTED. THIS MAY BE ACCOMPLISHED BY OVER-BUILDING THE SLOPES, THEN CUTTING BACK TO FINAL GRADES, OR BY RUNNING THE COMPACTOR OVER THE SLOPE AS EACH FILL LIFT IS BEING PLACED. ALL SLOPES SHALL BE COMPACTED BY THE END OF EACH WORKING DAY.
8. FIELD DENSITY TESTS SHALL BE MADE BY A QUALIFIED SOILS ENGINEER. DENSITY TESTS SHALL BE TAKEN AT OR JUST BELOW THE SURFACE OF THE FILL AT A LOCATION AND FREQUENCY DETERMINED BY THE SOILS ENGINEER. WHEN THE SOIL TESTS INDICATE THAT THE DENSITY OF ANY LAYER OF FILL OR ANY PORTION THEREOF IS BELOW THE SPECIFIED DENSITY, THE PARTICULAR SECTION SHALL BE REWORKED UNTIL THE REQUIRED DENSITY HAS BEEN OBTAINED.
9. PUBLIC STREETS SHALL BE KEPT CLEAR OF DIRT AND DEBRIS DURING GRADING OPERATIONS.
10. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY EARTHWORK QUANTITIES PRIOR TO BID SUBMITTAL. NO REPRESENTATION IS MADE IN THESE PLANS REGARDING THE CONSTRUCTION SUITABILITY OF ON-SITE SOILS OR THE FINAL CUT/FILL BALANCE.
11. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY EARTHWORK QUANTITIES PRIOR TO BID SUBMITTAL. NO REPRESENTATION IS MADE IN THESE PLANS REGARDING THE CONSTRUCTION SUITABILITY OF ON-SITE SOILS OR THE FINAL CUT/FILL BALANCE.
12. AS-BUILT PLANS: THE CONTRACTOR SHALL KEEP 2 SETS OF PLANS ON-SITE AT ALL TIMES FOR RECORDING AS-BUILT INFORMATION. ONE SET SHALL BE RETURNED TO WESTERN ENGINEERS, INC. AT THE COMPLETION OF CONSTRUCTION AND PRIOR TO THE FINAL ACCEPTANCE OF THE WORK.
13. THE CONTRACTOR/OWNER SHALL NOTIFY PERCO ENGINEERING P.C. AND THE CITY/COUNTY ENGINEER WHEN CONFLICTS OCCUR BETWEEN THE PLANS AND OBSERVED FIELD CONDITIONS. CONFLICTS SHALL BE RESOLVED WITH THE PROJECT ENGINEERS PRIOR TO PROCEEDING WITH CONSTRUCTION.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. LOCATIONS OF EXISTING UTILITIES ARE SHOWN BASED UPON THE BEST AVAILABLE RECORDS AND ARE SUBJECT TO VARIATIONS. FOR AID IN UTILITY LOCATIONS, CALL 1-800-553-4344.
15. SITE SOILS ARE CONSIDERED MOISTURE SENSITIVE AND ARE SUSCEPTIBLE TO DISTURBANCE BY CONSTRUCTION EQUIPMENT, PARTICULARLY DURING WET WEATHER. THE GRADING CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO LIMIT SURFACE DISTURBANCE AND TO PROTECT THE SITE GRADING AREA FROM EXCESSIVE EROSION.
16. AREAS TO RECEIVE FILL SHALL BE CLEARED OF ALL VEGETATION AND DELETERIOUS MATERIAL.
17. AREAS TO RECEIVE FILL SHALL BE PROOF ROLLED. ALL LOOSE OR SOFT AREAS SHALL BE REMOVED AND REPLACED WITH STRUCTURAL FILL.
18. ALL FILL MATERIALS SHALL BE FREE OF VEGETATION AND DELETERIOUS MATERIAL AND SHALL NOT CONTAIN ROCKS GREATER THAN SIX INCHES IN DIAMETER.
19. STRUCTURAL FILLS SHALL BE PLACED IN 6"-8" THICK LOOSE HORIZONTAL LIFTS AND SPREAD UNIFORMLY. AFTER EACH LIFT HAS BEEN PLACED AND SPREAD EVENLY, STRUCTURAL FILL SHALL BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DENSITY BY MODIFIED PROCTOR TEST (ASTM D-1557-70).
20. NON-STRUCTURAL FILL MAY BE COMPACTED TO 85-90% PROCTOR.
21. FIELD DENSITY TESTS SHALL BE MADE BY A QUALIFIED SOILS ENGINEER. DENSITY TESTS SHALL BE TAKEN AT OR JUST BELOW THE SURFACE OF THE FILL AT A LOCATION AND FREQUENCY DETERMINED BY THE SOILS ENGINEER. WHEN THE SOIL TESTS INDICATE THAT THE DENSITY OF ANY LAYER OF FILL OR ANY PORTION THEREOF IS BELOW THE SPECIFIED DENSITY, THE PARTICULAR SECTION SHALL BE REWORKED UNTIL THE REQUIRED DENSITY HAS BEEN OBTAINED.

WORK WITHIN EXISTING RIGHTS-OF-WAY

1. At the Public Works Director discretion, prior to commencing any construction photographs depicting pre-existing roadway conditions will be required every 50 feet in paved areas or any other location as specified by the Public Works Director A 35 mm camera shall be used and color pictures provided as 5" x 7" prints, contained in albums catalogued and cross-referenced.
2. Signing, flagging and traffic control shall be in accordance with the most current edition of these standards, (See Standard Traffic Control Plans in Section 4) the WSDOT Traffic Manual, and the Manual of Uniform Traffic Control Devices.
3. One lane of traffic shall remain open at all times, attended by flaggers and appropriate construction signing provided. The road shall be restored to two-way traffic at the end of each working day. Application for total road closures must be filed with the City Public Works Department at least 5 days prior to the anticipated closure.
4. Existing drainage ditches, culverts, etc., shall be kept clean at all times. Temporary diversion of any drainage system will not be permitted without the consent of the Public Works Director. Any drainage culvert, catch basin, manhole or other drainage structure disturbed by excavation shall be replaced with new material or repaired to the satisfaction of the Public Works Director. Temporary erosion/sedimentation control measures shall be employed to protect adjacent property and storm drain facilities.
5. Gravel shoulders disturbed by excavation shall be shaped to City standards and provided with a minimum of 2 inches compacted crushed surfacing top course gravel.
6. If in the opinion of the Public Works Director, weather conditions deteriorate to the point where the traveled roadways are unsafe for the public or detrimental to the restoration of the roadway, excavation shall cease immediately and cleanup shall be promptly accomplished.
7. All pipe or other material stored along City right-of-way must be placed at a safe distance from the traveled roadway in such a manner as to avoid falling onto the roadway.
8. No excess or unsuitable material shall be wasted on City right-of-way. Any such material dumped on private property may require a grading permit Verification with City of Arlington Public Works Department Development is required.
9. Street surfaces shall be cleaned at the end of each day's operation with a power broom or other approved means.
10. No open cut crossing of City roads or streets shall be made without the prior approval of the Public Works Director.
11. Maximum amount of open trench on streets shall be 400 lineal feet. At the end of each day, all ditches must be backfilled or covered with steel plates and barricaded with flashing warning lights to prevent people or animals from falling into the trench.
12. Final cleanup including complete restoration of shoulders, clearing of ditches, culverts and catch basins, and removal of loose material from back slopes of ditches shall not exceed 1500 l.f. behind excavating operations as required by the Public Works Director.
13. The permittee will be responsible to coordinate with the State Department of Natural Resources for any conflict between permit work and existing monumentation.
14. To remove existing asbestos cement pipe from trenches, a fee and permit is required from the Puget Sound Air Pollution Control Agency. In addition, Washington State Department of Labor and Industries requires that operators removing asbestos cement pipe be certified.

GENERAL REQUIREMENTS

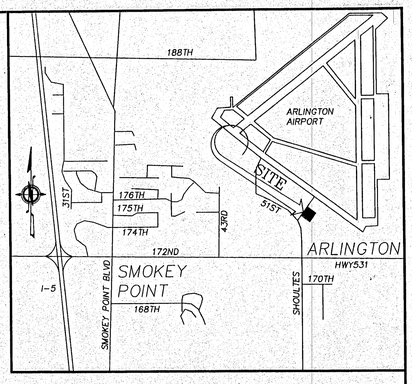
1. All work and materials shall be in accordance with the "Standard Specifications for Road, Bridge, and Municipal Construction," Washington State Department of Transportation and American Public Works Association, Washington State Chapter, current edition, except where modified by the latest edition of the City of Arlington Construction Standards and Specifications.
2. An approved copy of construction plans must be on site whenever construction is in progress.
3. It shall be the sole responsibility of the contractor to obtain street use and any other related permits prior to any construction activity in the City right-of-way. See the following section – "Work Within Existing Rights-of-Way."
4. Prior to any construction activity, the City of Arlington Public Works Department Gregg Eaton (360) 403-3527 must be contacted for a pre-construction meeting. ⚠
5. All locations of existing utilities 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, and to further discover and avoid any other utilities which may be affected by his work. The contractor shall contact the utilities underground location service (1-800-535-4344) prior to construction. The owner or his representative shall be immediately contacted if a utility conflict exists. A fee of $35.00 will be charged for each relocate request.
6. All materials shall be new and undamaged, of an approved brand, with replacement and repair parts readily available from the general Arlington/Everett/Seattle area.
7. All materials shall be approved by the City prior to installation.
8. All public water, sewer, and storm drainage piping not in public right-of-way requires 10 foot wide permanent easements granted to the City.
9. As-built plans shall be submitted for all developments, short plats, subdivisions, and any other construction relating to the City of Arlington streets, drainage, and utility systems. A Registered Land Surveyor or Professional Engineer shall verify that installation of roads and utilities was in accordance with the approved construction plan and profile sheets shall be so noted on the plans and the word "AS-BUILT" with the current date shall be written or stamped on the plans.

MAINTENANCE OF SILTATION BARRIERS

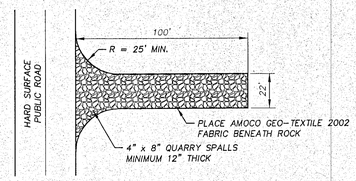
1. SILTATION BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED BARRIERS, END RUNS AND UNDERCUTTING BENEATH BARRIERS. NECESSARY REPAIRS TO BARRIERS OR REPLACEMENT OF BARRIERS SHALL BE ACCOMPLISHED PROMPTLY. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH RAINFALL. THEY MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

ARLINGTON CITY T.E.S.C. STANDARDS:

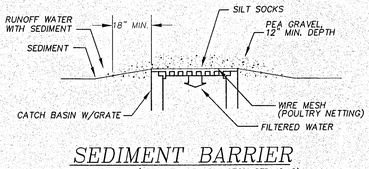
G-4 STRAW BALE DAM
G-7 GRASS LINES SWALE
G-11 ALTERNATE SEDIMENT CONTROL FENCE – SMALL AREAS



VICINITY MAP
SCALE 1" = 2,000 FT.

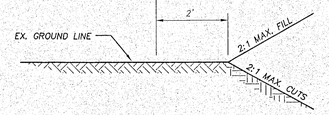


TEMPORARY CONSTRUCTION ENTRANCE
NOT TO SCALE (SEE ARLINGTON CITY STD. G-12)



SEDIMENT BARRIER
NOT TO SCALE (SEE CITY OF ARLINGTON STD. G-8)

NOTES:
1. INSTALLATION: THE AREA OF THE ENTRANCE SHOULD BE CLEARED OF ALL VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL. THE GRAVEL SHALL BE PLACED TO THE SPECIFIED DIMENSIONS. ANY DRAINAGE FACILITIES REQUIRED BECAUSE OF WASHING SHOULD BE CONSTRUCTED ACCORDING TO SPECIFICATIONS IN THE PLAN. IF WASH RACKS ARE USED, THEY SHOULD BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
2. AGGREGATE: 4" TO 6" CRUSHED BALLAST ROCK WSDOT STANDARD SPECIFICATION 9-03.9 (1)
3. ENTRANCE DIMENSIONS: THE AGGREGATE LAYER MUST BE AT LEAST 6 INCHES THICK. IT MUST EXTEND THE FULL WIDTH OF THE VEHICULAR INGRESS AND EGRESS AREA. THE LENGTH OF THE ENTRANCE MUST BE AT LEAST 100 FEET.
4. WASHING: IF CONDITIONS ON THE SITE ARE SUCH THAT MOST OF THE MUD IS NOT REMOVED FROM VEHICLE TIRES BY CONTACT WITH THE GRAVEL, THEN THE TIRES MUST BE WASHED BEFORE VEHICLES ENTER A PUBLIC ROAD. WASH WATER MUST BE CARRIED AWAY FROM THE ENTRANCE TO A SETTLING AREA TO REMOVE SEDIMENT. A WASH RACK MAY ALSO BE USED TO MAKE WASHING MORE CONVENIENT AND EFFECTIVE.
5. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2-INCH STONE, AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEAN OUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ROADWAY OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.



CONSTRUCTION SETBACK DETAIL
NOT TO SCALE

CITY OF ARLINGTON
THIS SHEET HAS BEEN APPROVED PER CONDITIONS ON THE COVER SHEET.

CONSTRUCTION	AS-BUILT ACKNOWLEDGMENT
BY: CITY ENGINEER	BY: CITY ENGINEER
DATE: / /	DATE: 8/10/06

CITY OF ARLINGTON
AS-BUILT CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT
THIS AS-BUILT PLAN SHEET HAS BEEN REVIEWED AND ACCEPTED AS A RECORD DRAWING. THE LICENSED DESIGN ENGINEER WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET ASSUMES FULL AND COMPLETE RESPONSIBILITY FOR THE ACCURACY THEREIN.
BY: CITY ENGINEER
DATE: / / THIS APPROVAL VALID FOR 18 MONTHS

REV. NO.	DESCRIPTION	INITIALS	DATE
1	CITY REVISIONS	MNF	7/22/03

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344

7/11/06
DAN R. CARREL 30764 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 6/20/08

PERCO
ENGINEERING P.C.
(PROFESSIONAL SERVICES CORP.)
9920 – 271st ST. NW
STANWOOD, WASH. 98292
PHONE: (360) 629-6710

GRADING & TESC NOTES & DETAILS
FOR
W. NEAL KARMAN

design	DRP
drawn	MNF
app'v'd'	
date	6-20-03
dwg.	6 OF 8
scale	AS SHOWN
job no.	22081

File Name: C:\Jobs\karman\karman.DWG

SECTION 21, TOWNSHIP 31 N., RANGE. 5 E., W.M.

WATER PIPE INSTALLATION
METHODS OF CONSTRUCTION

1. GENERAL:
Trenches shall be excavated to line and depth so all new pipelines constructed shall have not less than three (3) feet or in excess of four (4) feet of cover, measured from the top of the pipe to the approved finish grade. If a grade revision is made, the cover over the water main must remain within these limits; otherwise, the water main shall be reconstructed. All added costs of inspecting such water main reconstruction shall be charged to the Contractor.
The excavation shall be made in a straight grade through localized breaks in grade. The excavation shall be deepened gradually at changes in the street grades so that there are no abrupt changes in pipeline grade. Deflections at each pipe joint shall not exceed the maximum permissible deflection.
Except for unusual circumstances where approved by the Engineer, the trench sides shall be excavated vertically and the trench width shall be excavated only to such widths as are necessary for adequate working space. The minimum trench width at the top of the pipe shall normally be the outside diameter of the pipe barrel plus 16 inches. The top width of the trench shall not exceed the outside diameter of the pipe plus 36 inches. The trench shall be kept free from water until jointing is complete. Surface water shall be diverted so as not to enter the trench. The Contractor shall maintain sufficient piping equipment on the job to ensure that these provisions are carried out. Gravel required in the bottom of the trench due to action of weather or workman shall be furnished by the Contractor.
The Contractor shall perform all excavation of every description and of whatever substance encountered and boulders, rocks, roots and other obstructions shall be entirely removed or cut out to the new width of the trench and to a depth 6 inches below water main grade. Where material is removed from below water main grade, the trench shall be backfilled to grade with material satisfactory to the Engineer and thoroughly compacted.
Trenching operations shall not proceed more than 100 feet in advance of pipe laying except with written approval of the City.
When trenching operations cut through concrete pavement, the pavement shall be removed to a width of 18 inches greater than the top width of the trench. The concrete shall be cut on a straight line and shall be beveled so that the cut will approximately 1 inch wider at the top than at the bottom. Asphalt paving shall be cut ahead of the trenching equipment to prevent excessive tearing up of the surfacing and to eliminate ragged edges.
All trenching operations shall be performed in strict compliance with applicable Federal, State, local and industry safety regulations and requirements.
See Section titled "Roadway and Related Work" for trench work in existing roadways.

2. LAYING OF WATER PIPE:
All pipe shall be installed in accordance with these specifications, AWWA Specifications, and the instructions of the manufacturer subject to the approval of the City. All pipe ends shall be square with the longitudinal axis of the pipe and any damage to the ends shall be cut off before installation. Where necessary to cut the pipe, the pipe shall be cut with approved cutting tools.
The pipe shall be laid in a straight grade through localized breaks in grade, the excavation shall be deepened gradually at changes in the street grades so that there are no abrupt changes in pipeline grade. To maintain the required alignment, use short lengths and deflect the joints or use necessary bends. Maximum deflection allowed per DIPRA installation guide, 1994.
Each pipe section shall be carefully lowered into place in the ditch after inspecting it for defects and removing any gravel or dirt, etc., from the interior of the pipe.
When necessary, water mains to be constructed under other utilities shall meet the minimum cover requirements.
Where it is necessary to cross sanitary sewer or storm sewer trenches, all trench backfill shall be removed and replaced with mechanically compacted pit run material to provide a uniform support for the full length of the pipe.
A 10-foot horizontal separation must be maintained between all sanitary sewer lines and water lines. A 5-foot minimum horizontal separation shall be maintained between all water facilities and underground power and telephone facilities, unless otherwise approved.

3. CONCRETE BLOCKING:
Concrete blocking mix 1:2:4 shall be cast in place and have a minimum of #4 square foot bearing against the fitting and two square feet bearing area against undisturbed soil. Blocking must be formed with plywood, per the blocking spec sheet. Blocking shall bear against fittings only and shall be clear of joints so as to permit taking up or dismantling joint. All bends and tees shall be blocked in accordance with Standard Blocking Details. The Contractor shall install blocking which is adequate to withstand full test pressure as well as to continuously stand operating pressures under all conditions of service. For concrete blocking based on 200 psi test pressure with safe soil bearing load of 2,000 pounds per square foot, see Standard Detail.

4. FIRE HYDRANT INSTALLATION:
Fire Hydrants shall be set as shown in the Standard Detail. Shackle rods and Mega-lugs are to be used; the hydrant must have lugs and also the gate valve must have lugs. Fire hydrant ports are to be oriented as directed by the Fire Department.
The location of the fire hydrant shall be shown on the plans to determine length of hydrant run required. The hydrant shall be set on a solid concrete block 12"x 12" x 4" and a minimum of 6 cubic feet of clean gravel shall be placed around the base of the new hydrant for a drain pocket.
In some instances, it may be necessary to make a cut or provide a fill to set a hydrant. Where this occurs, the area for at least a three (3) foot radius around the hydrant shall be graded and level, and the cut slopes or fill slopes shall be neatly graded by hand, unless otherwise approved by the City and the Fire Chief.
No tool other than an approved hydrant operating wrench shall be used when operating hydrants.
Hydrants shall be painted with Case Yellow No. X-3472 finish in accordance with the paint manufacturer's recommendation.

5. GUARD POST INSTALLATION:
Fire hydrant guard post shall be installed as directed by the City. Guard posts shall be set with the top of the guard posts level with bonnet flange of the fire hydrant. They shall be plumb and where two posts are used at a hydrant, they shall be set with their tops at the same elevation. The exposed portion of each hydrant guard posts shall be painted with two coats of exterior concrete paint, color as designated by the City. Where hydrants are set in back of a concrete curb, guard posts will not normally be required.

6. GATE VALVE INSTALLATION:
Gate valves shall be set in the ground vertically and shall be opened and shut under pressure to check operation and, at the same time, show no leakage. Valves 8 inches and larger that are not flanged to other fittings shall be blocked in accordance with the Standard Blocking Details.
Valve boxes shall be set flush in pavement and in gravel shoulder.

7. WATER SERVICE INSTALLATION:
All service installation shall be per Standard Detail.

8. CONNECTION TO EXISTING WATER MAIN:
The contractor shall not operate any gate valve or make any connections to the existing water main without prior approval of the City.
The Contractor shall make the necessary arrangements with the city for the connection to the existing water main.
The City may elect to furnish the materials, equipment and labor necessary for making the connections and the Contractor shall pay the city all costs for the connection. In the event the City does not elect to make the connection, they may authorize the Contractor to furnish the City approved materials, equipment and labor necessary for making the connection under the supervision of the City.
All material used for the connection shall be thoroughly sterilized by swabbing the interior with a chlorine solution of 50 ppm.
Backflow prevention requirements shall be completed prior to beginning construction.

9. HYDROSTATIC TESTS:
After backfilling the water main between joints with sufficient dirt to prevent movement of the pipeline, allowing sufficient time for the concrete blocking to set, the water main shall be tested in convenient lengths as so ordered and when ordered by the City. In general, new water mains shall be tested between valves and large sections of untested main will not be permitted to accumulate.
The pipeline shall be filled with water slowly and all air expelled from the pipeline prior to starting the test. All pipelines shall be tested at hydrostatic pressure of 250 psi. All necessary pump, piping, meters, gauges, piping, hose and labor required shall be furnished by the Contractor.
All pressure testing shall be done in the presence of the City Engineer or Water Department inspectors. A minimum of 24 hours advance notice is required before the City Engineer or Water Department inspector will witness a pressure test.
The pressure tests shall be performed in the following manner:
Water shall be pumped into the main, bringing the pressure in the main up to required test pressure. After a period of fifteen minutes, water shall again be pumped into the main to bring the pressure up to the required test pressure and the quantity of water used during the test shall be accurately measured through a standard water service meter with a sweep unit hand that registers one gallon per revolution. The meter shall be approved by the Engineer prior to any testing. The allowable water consumption shall not exceed the quantities as shown in the following table as per APWA 74-2.11.
All visible leakage shall be corrected and all new valves installed under these specifications shall be tight.
Any pressure drop during the test period shall not be abrupt under any circumstances and the city shall be the sole judge as to whether the pressure drop is acceptable for the conditions existing in the pipeline being tested.
Whenever repairs or corrections are necessary, the pressure test shall be repeated to provide acceptability.

Pipe Size	Allowable Water Consumption – Gallons per 15 minutes/1,000 feet of pipe
4"	0.24
6"	0.36
8"	0.48
12"	0.71
16"	0.95
18"	1.07
20"	1.19
Larger Sizes	As determined by the Engineer

10. STERILIZATION AND FLUSHING OF WATER MAIN:
The pipeline shall be thoroughly sterilized by the Contractor. Sanitary test samples will be taken in accordance with State Health Department regulations. Re-stenlization will be required when unsatisfactory samples are encountered.
Water supply for filling, testing and flushing of the new mains will be available from the existing distribution system; however, the contractor will be billed by the City for the water used, at the rate of one dollar and 50 cents ($1.50) per one hundred (100) cubic feet. The Contractor shall not start up the pump to be used for flushing of the new mains until the City inspector is present to witness the pump startup.
The Contractor may provide his own metering facilities to the satisfaction of the City, or accept the quantities estimated by the City.
The Contractor shall not do any flushing of the pipeline without prior approval of the City. The Contractor shall be responsible for the disposal of chlorinated water used in testing of new construction. Such disposal shall be done in accordance with all applicable state and local laws.

11. SAMPLING STATION:
A minimum of one (1) #93-WM Sampling Station shall be installed by the Contractor for all new water main construction. The location and number of sampling stations required will be determined by the City during review of submitted construction drawings.

12. BACKFLOW PREVENTION:
To prevent contaminated water from the new main from entering the existing distribution system, a double check valve assembly shall be used on the line supplying the water. A double check valve assembly is sufficient backflow protection only for filing and flushing of the new main. During the hydrostatic pressure test, the temporary connection between the new main and the existing distribution system shall be removed.
The double check valve assembly shall be tested by a State approved Backflow Assembly Tester at the owner's expense, and inspected and approved by the water department prior to filling the new main. The double check valve assembly shall have brass plugs placed in all test cocks.
Consult the City's Cross-Connection and Backflow Prevention Manual for testing, inspection and approval procedures. Copies are available at the Public Works office. Backflow prevention requirements for fire sprinkler systems and commercial and domestic water services will be determined by the water department during the development review process.

WATER SYSTEM MATERIALS

1. WATER PIPE:
Ductile iron water pipe shall be new, Class 52, cement-lined, conforming to ANSI Standard A21.51 (AWWA C-151).
Ductile iron pipe shall be push-on joint (Tyton joint only) or mechanical joint. Pipe with push-on joints shall be furnished with a single rubber gasket. All gaskets, including MJ shall be lubricated to effect the seal. Pipe with mechanical joints shall be furnished with a mechanical joint of the stuffing box type, including rubber gasket, cast-iron gland, and tee-head bolts and nuts to effect the seal. All joints shall conform to ANSI Standard A21.11(AWWAC-111).
Flanged joints shall conform to ANSI Standard B16.1.
Internally locked joints shall be in accordance with ANSI A21.11 and equal to U.S. Pipe TR Flex or Griffin "Snap Lok".
Bell and socket joints shall be in accordance with ANSI A21.10 and equal to U.S. Pipe "Uniflex".
Standard thickness cement mortar lining shall be in accordance with ANSI Standard A21.4 (AWWA C-104).
The Contractor shall furnish certification from the manufacturer of the pipe and gasket being supplied that the inspection and all of the specified tests have been made and the results thereof comply with the requirements of this standard.

2. WATER SERVICE PIPE:
a. Driscopipe CTS Cl. 200 Hi Mol Poly Pipe All Diameters 1"-2"
Large diameter water service pipe shall be Driscopipe CTS Cl. 200 Hi Mol Poly Pipe (200 psi). Driscopipe shall conform to ASTM D-2737-SDR9 (PE3408). CTS 110 SS liners for polypipe shall be used.
Water services W to 4" in size require a mainline size tee with 4" flange and 4" R.S.G.V. with adapter to service size.

3. DUCTILE IRON FITTINGS:
Ductile iron fittings shall be short body for pressure rating of 150 psi, unless otherwise noted. Metal thickness and manufacturing process shall conform to applicable portions of ANSI Standard A21.10, A21.11, A21.53, B16.2 and B16.4.
Standard cement mortar lining in accordance with ANSI standard A21 4 (AWWA C-104).
Rubber gaskets for push-on-joint (Tyton) or mechanical joint (M.J.) in accordance with USA Standard A21.11 (AWWA C-III).
Where restrained joints are required, fittings may be manufactured with U.S. Pipe TR Flex, Griffin "Snap Lok" of Pacific States Restrained Joint. Mega-Lug retainer glands may be used at fittings.

4. FIRE HYDRANTS:
Fire hydrants shall be Mueller Super Centurian 250 W/5-1/4" MVO or MH 929 Reliant W/5-1/4" MVO. Install Per Fire Hydrant Assembly Drawing.
Fire hydrants shall be fitted with a approved 5" Storz to 4 1/2" NST female adapter.

5. GATE VALVES, RESILIENT SEAT:
Valves 12 "and smaller shall conform with the requirements of AWWA Standard Specifications for gate valves for ordinary water works service No. C-509, except as superseded by the following: They shall be iron body with epoxy coating inside, resilient seat rubber vulcanized to gate, or S.S. seat ring attached to disc with S.S. screws. The valves shall be non-rising stem, open to the left, and shall be equipped with standard 2" square operating nuts. Valves shall be equipped with "O-ring" packing. Valves to be equal to American-80 "CRS", Waterous Series 500 or Mueller A-2370.

6. BUTTERFLY VALVES:
Butterfly valves 12" and larger shall be Class 150 or better, similar and equal to Dresser"450" or Pratt "Groundhog" and shall meet or exceed all strength requirements of AWWA C-504-70, except that certain deviations in the construction details of the valve seats and shaft seals will be considered by the City.
Valve shafts shall meet or exceed the strength requirements of AWWA C-504-70 and be one-piece. Packing shall be "O-ring" except the City will review other types of packing for possible approval.
Butterfly valves to be installed underground shall have sealed mechanical operators and 2" standard square operating nuts.
The valve operating nut shall not exceed 4 feet in depth. An extension shall be provided as required.
Complete manufacturer's Specifications for the vales proposed for use shall be submitted to the City for approval.
No valves shall be installed which have not been approved by the City.

7. VALVE BOXES:
Valve boxes shall be two-piece, cast iron valve box with adjustable sections equal to Olympic Foundry Part No. VB1. With Deep Skirt Lids.

8. METER BOXES:
Meter boxes shall be Mid States Plastic With Ductile Iron Lids and a 1-3/4" hole in lid for "Touch Read" mount.
For 5/8" & 1" Meter use the MSBCF 1324-12.
For 1-1/2" & 2" Meter use the MSBCF 1730-18.

9. METER SETTERS:
Meter setters shall be installed on 1-1/2" and 2" services. For 1/2" services use Mueller H 1423-2.2012 WW or equal. For 2" services use Mueller H 1423-2.1512 WVV or equal.

10. SERVICE MATERIAL
All small size valves, tubing and fittings to be as specified on the Standards Detail or its equal approved by the City.

11. FIRE HYDRANT GUARD POSTS:
Concrete fire hydrant guard posts shall be made of pre-cuts reinforced concrete, nine (9) inches in diameter, six (6) feet long.

12. PIPE BEDDING FOR WATER PIPE:
It is anticipated that native material will be suitable for pipe bedding. Actual determination of suitability will be determined by the City during construction based on observation of the native material.
If the native material is judged unsuitable for pipe bedding, imported pipe bedding gravel shall be furnished and placed by the Contractor. See Sanitary Sewer Material Specification Number 4.
Bedding shall extend from 4" below the pipe bell to 6" over the pipe. Width of the trench shall be limited to the maximum as shown on the Rigid Pipe Typical Trench Detail.

13. TRENCH BACKFILL FOR WATER PIPE:
It is assumed that existing excavated material will be suitable for trench backfill. If the excavated material is judged unsuitable by the City, imported backfill gravel shall be furnished and placed. See Sanitary Sewer Materials Specification Number 4.
All trench backfill shall be mechanically compacted to 95 percent standard density. No water jetting will be allowed. Width of the trench shall be limited to the maximum as shown on the Rigid Pipe Typical Trench Detail.

SEWER PIPE MATERIALS:

1. SEWER PIPE:
a. Ductile Iron Pipe and Fittings:
Ductile iron pipe shall be standard thickness and push-on-joint, Class 52, unless otherwise shown on the contract plans, and shall be cement lined conforming to ANSI A21.51 (AWWA C-151). All fitting shall meet current applicable ASA All.10 (AWWA C110) and ASA A 21.11 (AWWA CIII) specifications. Fittings shall be furnished with cement mortar lining conforming to AWWA C104. Ductile iron fittings shall be centrifugally cast in metal molds or sand-lined molds complying with the requirements of ANSI/AWWA C151/A21.51.
Standard cement mortar lining shall be in accordance with ANSI Standard A21.4 (AWWA C-104).
Rubber gaskets for push-on-joint (Tyton) or mechanical joint (M.J.) shall be in accordance with USA Standard A21.11 (AWWA C-III).
Where restrained joints are required fittings may be manufactured with U.S. Pipe TR Flex, Griffin "Snap Lok" or Pacific States Restrained Joint. In addition, Mega-Lugs may be used.
If required, ductile iron pipe shall be encased with polyethylene encasement. Material and installation shall be in accordance with AWWA C105. Installation shall be in accordance with Method A or Method C.
Internally-locked joints shall be in accordance with ANSI A21.11 and equal to U.S. Pipe TR Flex or Griffin "Snap Lok."
The Contractor shall furnish certification from the manufacturer of the pipe and gasket being supplied that the inspection and all of the specified tests have been made and the results thereof comply with the requirements of this standard.
b. PVC Pipe and Fittings:
All PVC pipe and fittings shall be integral wall bell and spigot, rubber gasket joint, unplasticized polyvinyl chloride (PVC) pipe conforming to ASTM 3034 SDR 35. All PVC sewer pipe and fittings manufacture and installation shall be in accordance with the ASTM recommended specifications D3034-73, current revisions, and all installation shall be in strict compliance with the manufacturer's directions. All pipe shall be clearly marked with the date of manufacture. There shall be no reduction in pipe wall thickness at the bell as a result of bell formation. All pipe shall be provided with a reference mark for proper spigot insertion. Joint gaskets shall be fabricated from a compound of which the basic polymer shall be a synthetic rubber consisting of styrene, butadiene, polyisoprene, or any combination thereof and shall meet the requirements of ASTM F477, latest revisions.
PVC pipe may only be used at depths less than 14 feet. Invert elevation depths exceeding 14 feet require either Cl. 52 ductile iron pipe or C-900.
c. Tees and Wyes:
Connections for side sewer stubs shall be 6 inches inside diameter tee fittings fabricated in the manufacturer's plant. Wye branches shall be used where the sewer main size is less then 8" inside diameter. No field cut-in tees or wyes will be allowed under these specifications without written approval by the City.

2. MANHOLES:
Manholes shall be of the offset type and shall be pre-cast concrete sections with either a cast in place base or a pre-cast base made from a 3,000 psi structural concrete. Joint between pre-cast wall sections shall be confined O ring or as otherwise specified. They shall be constructed in full compliance with ASTM C478 and the details shown on Standard Specifications Precast Manhole and as further specified herein. See City Standards.

3. FRAMES AND COVERS:
Frames and covers shall be cast iron and conform to the Standard Specification Drawings for standard Manhole Fame and cover, equal to Olympic Foundry Part No. MH30 modified to have 1 each 7/8" diameter lift hole, and Locking Cleanout Detail, equal to Olympic Foundry Part NO. MI 025. Castings shall conform to the requirements of ASTM A-48, Class 30 and shall be free of porosity, shrink cavities, cold shuts or cracks, or any surface defects which would impair serviceability. Repair of defects by welding, or by the use of smooth-on or similar material, will not be permitted. Frames and covers shall be machine-finished or ground on seating surfaces so as to assure non-rocking fit in any position and interchangeability of covers. When required, frames and covers shall be provided with locking lids as noted on the standard specification Drawing for Locking Manhole Frame and Cover, equal to Olympic Foundry part no. MH30D/T modified to have 1 each 7/8" diameter lift hole. Locking lids will be required except when manholes are located in paved right-of-way, unless otherwise directed by the City. Rings and covers shall be adjusted to conform to the final finished surface grade of the street to the satisfaction of the City or agent of the City.

4. FOUNDATION, BEDDING AND BACKFILL GRAVEL:
Backfilling and surface restoration shall closely follow installation and testing of the pipe, so that no more than 100 feet of pipe is left exposed with express approval of the Engineer. Care shall be taken to insure that the pipe and its protective coatings are not damaged. No rocks or stone shall be permitted within 12" of the pipe.
a. Foundation Gravel:
When required in areas of unsuitable trench bottom, foundation gravel shall consist of clean, granular material free from objectionable materials such as vegetable matter or other deleterious substances with at least 90 per cent coarse material ranging from 1" in diameter to 3" in diameter and 100 percent 3" in diameter or less.
b. Bedding Gravel:
Rigid Pipe: Bedding material shall consist of clean, granular manufactured pea gravel with the following gradation requirements:

U.S. Standard PVC Size	%Passing by Weight	
3/4"	100	
3/8"	95 – 100	
--------------		0 – 10
No. 200	0 – 3	
Sand Equivalent	50 Minimum	

Flexible Pipe: Bedding gravel shall be a clean sand/gravel mixture free from organic matter meeting the following gradation when tested in accordance with ASTM D422:

U.S. Standard Size	% Passing by Weight
3/4"	100
3/8"	70 – 100
No. 4	55 – 100
No. 10	35 – 95
No. 20	20 – 80
No. 40	10 – 55
No. 100	0 – 10
No. 200	0 – 3
Sand Equivalent	35 Minimum

Bedding material shall be carefully placed and firmly compacted to provide a firm, uniform cradle for the pipe. The minimum thickness of the layer of bedding material required shall be 4 inches under the bell for all pipe sizes of 27 inches diameter and smaller, 6 inches for all pipe sizes 30 inches diameter and larger and 6 inches under the bell of the pipe for all diameter pipes where rock is excavated. To provide this firm, continuous support for the pipe, it is necessary to hand tamp or "slice" bedding material solidly under the pipe.
After the pipe laying operation, additional bedding material shall be placed and compacted by hand tools for the full width of the trench to a height of 12" above the top of the sewer main and 6" above the top of the water main.
c. Backfill Gravel:
It is assumed that excavated material is suitable for trench backfill.
Where excavated material is not approved for backfill, Gravel Base, Class B, conforming to the requirements of Section 9-03.10 of the state of Washington Standard Specifications for Road, Bridge and Municipal Construction, or granular material commonly known as bank run gravel, shall be used as directed by the Engineer.
Bank run gravel shall be free from wood, roots, bark or other extraneous material. It shall have such characteristics of particle size and shape that it will compact readily to a firm, stable base.
The maximum size of stone shall not exceed that which will pass a 2-1/2 inch square sieve opening. Gradation shall be as follows: 25 percent minimum passing 1/4 inch sieve; 10 percent maximum passing U.S. No. 200 sieve; dust ratio 2/3 maximum; sand equivalent 30 minimum.
Prior approval for the use of a pit from which the Contractor and/or Developer desire to provide pit run material may be granted by the city and/or Engineer.
Where governmental agencies other than the City have jurisdiction over roadways, the backfill and compaction shall be done to the satisfaction of the agency having jurisdiction.
See Section titled "Roadway and Related Work" for trench work in existing roadways.

5. CLEANOUTS:
Cleanouts shall be locking lid type Olympic Frame and Cover Part No. M1025 or equal to be installed as shown on the Standard Specification for Cleanouts.

6. INDUSTRIAL/COMMERCIAL MONITORING MANHOLES:
Manholes shall conform to Materials Specifications 2 and 3 in this Section subject to the following.
- Monitoring manholes shall have a minimum depth to invert of 4 feet and a maximum of 8 feet.
- Manholes with a depth of 5 feet or less to invert must have a flat top slab.
- Manholes shall have locking frame and cover

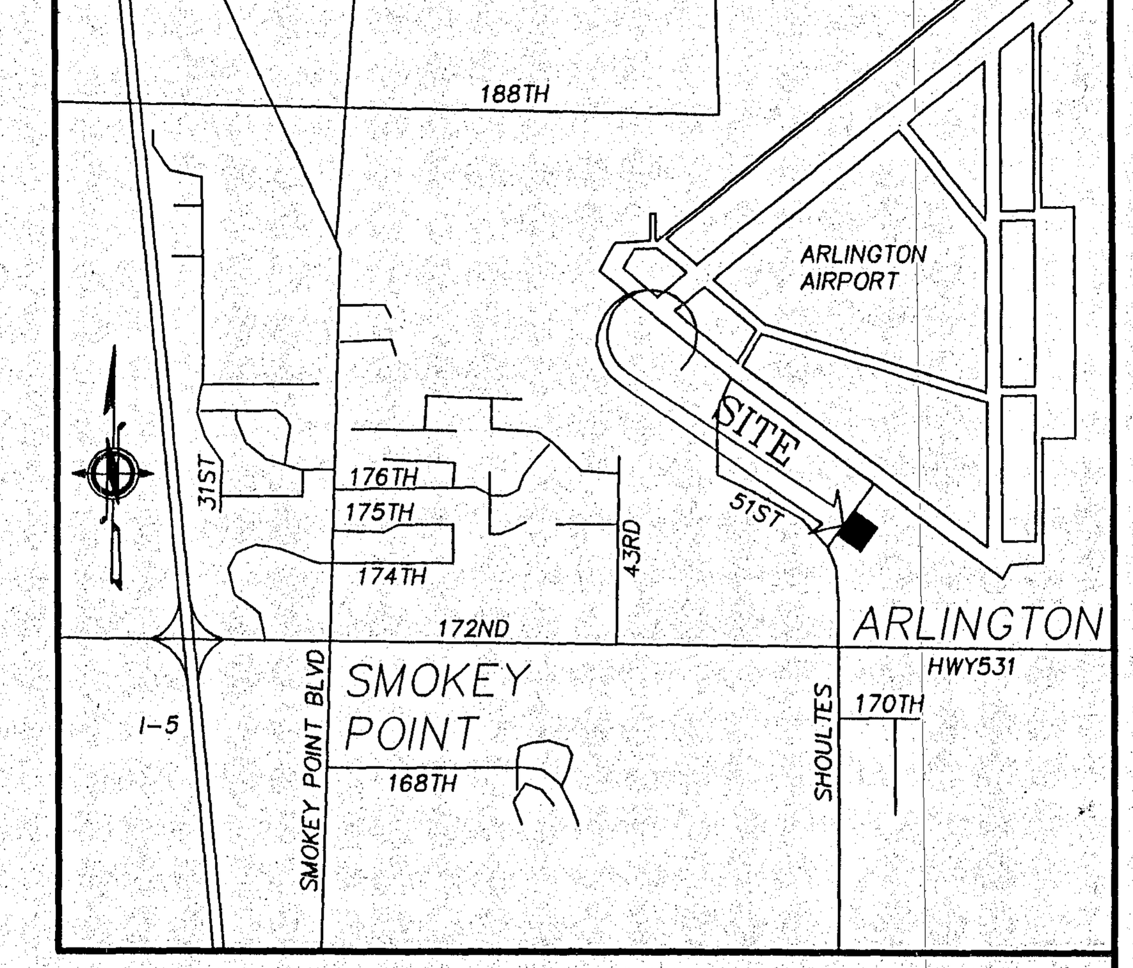
METHODS OF CONSTRUCTION

1. SEWER PIPE INSTALLATION:
A 10-foot horizontal separation must be maintained between all sanitary sewer lines and water lines. A 5-foot minimum horizontal separation shall be maintained between all water facilities and underground power and telephone facilities, unless otherwise approved.
a. Pipe Laying:
The sewer pipe, unless otherwise approved by the City Engineer, shall be installed upgrade from point of connection on the existing sewer or from a designated starting point to line and grade per approved plans. The sewer pipe shall be installed with the bell end forward or upgrade. When pipe laying is not in progress, the forward end of the pipe shall be kept tightly closed with an approved temporary plug. Wherever movable shoring (steel box) is used in the ditch, care shall be taken so that the pipe and/or joints do not move when the shoring or box is moved. Any indication that joints are not being adequately held shall be sufficient reason for the City Engineer to require restraints, whether or not movable shoring is being used.
b. Pipe Jointing:
All extensions, additions and revisions on the sewer system, unless otherwise indicated, shall be made with sewer pipe joined by means of a flexible gasket which shall be fabricated and installed in accordance with these specifications.
All joints shall be made up in strict compliance with the manufacturer's directions and all sewer pipe manufacture and handling shall meet or exceed the ASTM and CPAW recommended specifications, current revisions.
Pipe handling after the gasket has been affixed shall be carefully controlled to avoid disturbing the gasket and knocking it out of position or loading it with dirt or other foreign material. Any gaskets so disturbed shall be removed, cleaned, re-lubricated, if required, and replaced before the re-joining is attempted.
Care shall be taken to properly align the pipe before joints are entirely forced home. During insertion of the tongue or spigot, the pipe shall be partially supported by hand, sling or crane to minimize unequal lateral pressure on the gasket and to maintain concentricity until the gasket is properly positioned. Since most flexible gasketed joints tend to creep apart when the end pipe is deflected and straightened, such movement shall be held to a minimum once the joint is home.
Sufficient pressure shall be applied in making the joint to assure that it is home, as described in the installation instructions provided by the pipe manufacturer. Sufficient restraint, as specified earlier, shall be applied to the line to assure that joints once home are held so, until fill material under and alongside the pipe has been sufficiently compacted. At the end of the work day, the last pipe laid shall be blocked in an effective way to prevent creep during "down time".
Installation shall be on bedding consisting of compacted (minimum of 90 percent of maximum density) granular material a minimum of 4 inches below the bottom of the pipe bell. Pipe cover shall be a minimum of 3 feet with compaction to a minimum of 90 per cent maximum density to a point 12 inches above the pipe.
Allowable height of cover over the pipe shall be as approved by the city for the class of embedment material and the densities required and obtained in the pipe zone.
Further, all 8" or larger PVC pipe laid shall be deflection tested in accordance with Paragraph 7-17-3 of the Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction. For acceptance, PVC pipe shall not have any diameter decreased by 5 per cent or more.
c. Concrete Bedding:
Special concrete bedding shall consist of a pipe cradle constructed of Portland cement concrete containing not less then four (4) sacks of cement per cubic yard. Sand, gravel, and water proportions to be approved by the Engineer. Maximum aggregate size shall be 1-1/2 inches. Maximum slump shall be 4 inches. The bottom of the trench shall be fully compacted before the placement of pipe cradle. The Contractor shall protect pipe against flotation and disturbing the horizontal alignment of the pipe during the pouring of the concrete.

2. SIDE SEWER STUBS:
A side sewer stub is considered to be that portion of a sewer line that will be constructed between a main sewer line and a property line or easement limit.
All applicable specifications given herein for sewer construction shall be held to apply to side sewer stubs.
Side sewers shall be single and installed according to the Standard Specification Drawing for Side Sewer Connections, Service Connection Elevation, and Single Side Sewer. In no case may the specified side sewers be changed without the approval of the City Engineer.
Side sewers shall be connected to the tee, provided in the sewer main where such is available, utilizing approved fittings or adapters. This side sewer shall rise at a maximum of 45° and a minimum of 2 percent, from the sewer main. Side sewers shall be installed at a depth of 5 to 10 feet, unless otherwise specified.
Where there are no basements, the minimum side sewer depth shall be six (6) feet below existing ground at the property line, except where the property owner may require additional depth. The Contractor shall provide for each 6 inch outlet a 2 inch x 4 inch wooden post which extends from the invert of the 6 inch outlet to a point 18 inches (minimum) and 2 feet (maximum) above the existing ground. The exposed area of this post shall be painted white and shall have marked thereon the letters S/S. The elevations of the side sewer connections shall be of sufficient depth to serve all existing basements.
Side sewers stubs shall be extended 10 feet into the property being served.
Rigid pipe:
Where no tee or wye is provided or available, connection shall be made by machine-made tap and suitable saddle, or otherwise as approved by the City Engineer.

3. ON-SITE SIDE SEWER:
An on-site side sewer is defined as that portion of the sewer line beginning 24 inches outside of the sewered unit and ending at the property line or side sewer stub.
All applicable specifications given herein for sewer construction shall apply to on-site side sewer connections.
Minimum grades for on-site connections are 2 for 4" pipe, 1 for 6" pipe, and 0.4 for 8" pipe.
A static water test is required on all on-site side sewer connections.
All systems that require a lifting pump must submit a grade release form to the Public Works Department prior to final occupancy.
In addition to Cleanouts at points of angle changes, a cleanout will be required at the point of connection to the sewered unit. This cleanout must be extended to within 12 to 18 inches of the finished grade.
All utility fees must be paid 24 hours prior to request for utility inspections. Request for side sewer inspection must be made 24 hours prior to the desired inspection time.
Commercial/Industrial pretreatment applications must be submitted a minimum of 10 business days before utility fees are paid or side sewer inspection is requested. We recommend pre-construction approval of the application, as pretreatment equipment may be required. Exceptions to this must be approved by the Utilities Superintendent.

4. TESTING GRAVITY SEWERS FOR ACCEPTANCE:
After backfilling the sewer main between joints with sufficient dirt to prevent movement of the pipeline, and allowing sufficient time for any concrete blocking to set, the Contractor and/or Developer shall furnish all facilities and personnel for conducting tests under the observation of the Engineer. The equipment and personnel shall be subject to the approval of the City Engineer.
a. Preparation for Testing:
The Contractor and/or Developer shall be required prior to testing to clean and flush with an approved cleaning ball and clean water all gravity sewer lines. The completed gravity sewer, including side sewer stubs, after completion of backfill and cleaning, shall be tested by the low pressure air test method. Specified by the City.



VICINITY MAP
SCALE 1" = 2,000 FT.

4. FINAL ACCEPTANCE:
Prior to final inspection, all pipelines shall be flushed and cleaned and all debris removed. A pipeline "cleaning ball" of the proper diameter for each size of pipe shall be flushed through all pipelines prior to final inspection.
Before sewer lines are accepted, all lines shall be inspected for line and grade by checking each section between manholes for alignment. A full circle of light shall be seen by looking through the pipe at a light held in the manhole at the opposite end of the section of sewer line being inspected. Any corrections required in the line and grade shall be made at the expense of the Developer and/or Contractor.
Variance from established line and grade shall not be greater than one thirty-second (1/32) of an inch per inch of pipe diameter and not to exceed one-half (1/2) inch, provided that such variation does not result in a level or reverse sloping invert; provided, also, that variation in the invert elevation between adjoining ends of pipe, due to non-concentricity of joining surface and pipe interior surfaces, does not exceed one sixty-fourth (1/64) of an inch per inch of pipe diameter, or one-half (1/2) inch maximum.
Flexible Pipe:
Where no tee or wye is provided or available, a cut-in tee or wye will be installed with 2 PVC couplings as approved by the City Engineer.
The maximum bend permissible at any one fitting shall not exceed 45° bend. Bends exceeding 45° with any combination of two fittings shall have a straight pipe of not less than three (3) feet in length installed between such adjacent fittings, unless one of such fittings be a wye branch with a cleanout provided on the straight leg. The maximum length of 6 inch sewer line shall be 100 feet; minimum length shall be 5 feet unless otherwise approved by the City.

5. TELEVISION INSPECTION:
The City will require any or all sanitary sewers be inspected by the use of a television camera and recorded on VHS format videotape before final inspection. All side sewers will also be videotaped using a rotating head camera. Footage indicators and beginning/ending I.D. marks must be included in the videotape. The costs incurred in making the inspection shall be done by the Developer and/or Contractor. Television inspection may not be performed by the developer or contractor until all air testing, manhole channeling and line cleaning has been completed. The videotape of the television inspection must be submitted to the City for review and approval five (5) days prior to requesting final inspection or completing paving, whichever comes first.
The Developer and/or Contractor shall bear all costs incurred in correcting any deficiencies found during television inspection including the cost of any additional television inspection that may be required by the city to verify the correction of said deficiency.
The video tape shall be submitted to City as a permanent record.

6. INDUSTRIAL/COMMERCIAL MONITORING MANHOLES:
Manhole lids shall be set to surrounding finish grade.
Channel design will be determined by sewer superintendent at time of installation.
Monitoring manhole locations shall be accessible to city personnel on a 24 hours per day 7 days a week basis.

ARLINGTON CITY WATER & SEWER STDS:

W-3	CONCRETE BLOCKING
W-10	WATER METER INSTALLATION
S-1	PRECAST MANHOLE
S-7	TYPICAL TRENCH SECTION – RIGID PIPE
S-11	CLEANOUT

CITY OF ARLINGTON
THIS SHEET HAS BEEN APPROVED PER CONDITIONS ON THE COVER SHEET.

CONSTRUCTION	AS-BUILT ACKNOWLEDGMENT
BY: ____ CITY ENGINEER	BY: [signature] CITY ENGINEER
DATE: __/__/__	DATE: 8/10/06

CITY OF ARLINGTON
AS-BUILT CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

THIS AS-BUILT PLAN SHEET HAS BEEN REVIEWED AND ACCEPTED AS A RECORD DRAWING. THE LICENSED DESIGN ENGINEER WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET ASSUMES FULL AND COMPLETE RESPONSIBILITY FOR THE ACCURACY THEREIN.

BY: ____ CITY ENGINEER
DATE: __/__/__
THIS APPROVAL VALID FOR 18 MONTHS

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344

DAN R. PARRENT — STATE OF WASHINGTON — 30764 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 6/20/08
7/17/06 [signature]

REV. NO.	DESCRIPTION	INITIALS	DATE
1	CITY REVISIONS	MNF	7/22/03

PERCO ENGINEERING P.C.
(PROFESSIONAL SERVICES CORP.)
9920 – 271st ST. NW
STANWOOD, WASH. 98292
PHONE: (360) 629-6710

WATER & SEWER NOTES & DETAILS FOR W. NEAL KARMAN

design	DRP
drawn	MNF
app'v'd	
date	6-20-03
dwg.	7 OF 8
scale	AS SHOWN
job no.	22081

File Name: C:\Jobs\karman\karman.DWG

ROADWAY AND RELATED WORK

1. GENERAL:
In general, except where modified or amended in this document, roadway construction and materials used shall conform to the requirements of Divisions 1 through 9 and the Division 1 APWA supplement of the 1994 Standard Specifications for Road, Bridge, and Municipal Construction. This includes the most recent amendments of said Standard Specifications and Standard Plans.

2. EXCAVATING IN PAVED AREAS:
Prior to excavating in paved areas, the existing road surface shall be cut 1' (minimum) back from the outer edge of the excavation with cutter, jackhammer, or other approved equipment and removed. The pavement shall not be cut with a backhoe, trencher or power shovel. The cuts are to be made in clean, straight lines to insure a minimum of damage to the existing pavement. All cuts in existing concrete pavement are to be made with a concrete saw, except that where the concrete has been overlaid with asphalt, the pavement may be drilled on three (3) inch centers 1' (minimum) from the outer edge of the excavation on each side of the trench section. If the Contractor and/or Developer fails to adequately protect the cut edges during trenching and backfilling, he will be required at his own expense, to recut the edges prior to repairing the pavement.

All material excavated from trenches and stored adjacent to trench or in a roadway or public thoroughfare shall be maintained so that the toe of the slope of the spoil material is at least two (2) feet from the edge of the trench. It shall be stored in such manner that will cause a minimum of inconvenience to public travel and provision shall be made for traffic where such is necessary. Free access shall be provided to all fire hydrants, water valves, and meters and clearance shall be left to enable the free flow of storm water in all gutters, conduits, and natural water courses.

3. BACKFILL REQUIREMENTS IN PAVED AREAS:
At all roadway and driveway crossings and within existing paved rights-of-way and in such additional locations as may be directed by the City Engineer, the trench shall be immediately backfilled after the pipe is installed and inspected and shall be immediately provided with a temporarily graveled surface and continually maintained on a daily basis until replaced with permanent repair as required.

All paved crossings shall have a temporary asphalt paved surface installed, which shall be a minimum of 2 inches in thickness and fully maintained level with existing undisturbed pavement until replaced with permanent repair.

Sufficient cold mix to make immediate temporary repairs and to maintain repairs until permanent repair is made shall be on the jobsite.

From the point twenty-four (24) inches above the top of the pipe barrel, the backfill may be performed with regular equipment up to a level of the original ground; except that, where the underground utility is located within or adjacent to streets, driveways, sidewalks, or in other locations as directed by the City Engineer, then all backfill from the point twenty-four (24) inches above the top of the pipe barrel shall be compacted in accordance with Method C, Section 2-03.3(14)C of the Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction, to a minimum of ninety-five percent (95%) of standard density, as determined in accordance with the Method of Test for Moisture Density, Relations of Soil, ASTM Designation D-698, for other than granular materials or as measured by the Washington Department of Transportation Method for Granular Materials.

Trench Backfill:
Suitable native material excavated during trenching shall be used for trench backfill unless notified by the city engineer that the native material is suitable. The city engineer or his representative will examine excavated native material at the time of excavation to determine its suitability for use as backfill. Native material will be considered suitable for trench backfill if it is:

1. Capable of attaining the degree of compaction specified in Section 3, Compaction.
2. Within reasonable tolerance of optimum moisture content.
3. Reasonably free of organic material, clay, frozen lumps, rocks or other deleterious matter.

Unsuitable backfill material shall be removed from the site and hauled to an approved disposal site. The city engineer shall be provided with the location of all disposal sites to be used and also copies of the permits and approvals for such disposal sites.

Compaction:
Trench backfill shall be spread in layers and compacted by mechanical tempers of the impact type approved by the city engineer. The backfill material shall be placed in successive layers with the first layer not to exceed 2 feet above the pipe, and the following layers not exceeding 12 inches in loose thickness with each layer being compacted to the density specified below:

1. Improved areas such as street and sidewalks shall be compacted to 90% of maximum dry density to within 3 feet of subgrade. The last 3 feet shall be compacted to 95% of maximum dry density.
2. Unimproved area or landscape areas shall be compacted to 90 of maximum dry density.

4. REPLACING ROAD SURFACE:
The Contractor shall restore all roadway and driveway surfaces excavated or disturbed to a condition acceptable to the City.

All work in the City street right-of-way shall be subject to approval of the City Engineer. Paving restoration consists of two steps. The first step is installation of a temporary cold mix patch to be maintained until all work and other restoration is complete. The second step is installation and sealing of the permanent pavement trench patch.

This work shall consist of the preparation, placing and compaction of subgrade and the patching of various types of pavement cuts to the complete resurfacing of roadways, the performance of which shall be in accordance with the requirements outlined herein.

Roadway restoration and patching shall be in accordance with the Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction, unless specifically directed otherwise by the City and/or the Engineer.

Before patching material is placed, all pavement cuts shall be trued so that marginal lines of the patch will form a rectangle with straight edges and vertical faces a minimum of one (1) foot back from the maximum trench width.

Proper signs, barricades, lights and other warning device shall be maintained 24 hours of the day until the patch is completed and ready for traffic.

a. Crushed Surfacing:
Crushed surfacing material shall be 1-1/4" and 5/8" minus crushed gravel and shall be manufactured from ledge rock, talus or gravel in accordance with the provisions of Section 9-03.9(3) of the Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction.

All crushed surfacing top course shall be placed in accordance with the requirements of Sections 4.04.1-4 of the Standard Specifications of the State of Washington Department of Transportation.

b. Gravel Base:
All gravel base shall conform to the requirements of Section 9-03.10 Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction for Gravel Base, Class B. Gravel base shall be spread as directed by the Engineer during construction and compacted in accordance with the requirements of the Departments of Highways Specifications before material for succeeding course is spread. Gravel base shall be used for a base material and for the select backfill of trenches in the event that the excavated material is unsuitable for backfill.

Gravel base shall be used as shown on the plans and as directed by the City and/or Engineer.

c. Asphalt Concrete Surfacing:
Asphalt concrete surfacing or repair shall be asphalt concrete pavement, Class "B", and shall conform to Section 5-04 of the Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction, and the Standard Specification Drawing for Permanent Asphalt Concrete Patch. All edges and joints of asphalt concrete pavement repair shall be sealed with asphalt cement. After pavement is in place, all joints shall be sealed with SS-1, or equal.

d. Cement Concrete Pavement:
Concrete shall conform with and shall be placed in accordance with Section 5-05 of the Washington State Department of transportation Standard Specifications for Road, Bridge and Municipal Construction, and shall be Class "B" and shall be furnished only by manufacturers who are members of the Portland Cement Association. Concrete cylinder samples will be taken by the Engineer for the purpose of testing the compressive strength of the concrete. The concrete shall be five (5) sack "High Early" cement mix. Subgrades shall be prepared as shown on the plans and in compliance with the Washington State Department of Transportation standard Specifications for Road, Bridge and Municipal Construction.
All reinforcing steel shall conform with and be placed in accordance with Section 5-05 of the Standard Specifications of the State of Washington, Department of Transportation, and shall conform to the requirements of ASTM Designation A-15 and A-305, latest revisions.

e. Rigid-Type Pavements Resurfaced with Asphalt Concrete:
Those areas that now have a Portland cement concrete base and are surfaced with the asphalt concrete mat shall be placed in kind. The base shall be five (5) sack mix using "High Early" cement. The surface of the cement concrete portion of the patch shall be left low enough to accommodate the asphalt portion of the patch. Brush finishing will not be required. Joints shall be placed if directed by the City and/or Engineer. The asphalt concrete surface mat to be placed over the Portland cement concrete base shall be as designated by the Washington State Department of Transportation as Class "B", both the base and the surface mat shall be carefully prepared, placed and cured in full compliance with Section 5-05.3 of the Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction.

Asphalt concrete or bituminous plant mix shall not be placed until the day after the cement concrete has been placed unless permitted by the Owner and/or, Engineer. The edges of the existing asphalt pavements and castings shall be painted with hot asphalt cement or asphalt emulsion immediately before placing the asphalt patching material. The asphalt concrete pavement shall then be placed, leveled and compacted to conform to the adjacent paved surface. Immediately thereafter, all joints between the new and original asphalt pavement shall be painted with hot asphalt or asphalt emulsion and be covered with dry paving sand before the asphalt solidifies.

f. Shoulder, Gravel Surfaces:
Shoulders, gravel driveways, and all other gravel surfaced areas shall be repaired as detailed on the plans, with a 2 inch lift of 5/8 inch minus crushed rock. Immediately prior to placement of gravel, the drainage ditch, shoulders and/or driveways shall be graded to the final contours in the area. The gravel shall then be placed and compacted in accordance with the applicable state Department of Transportation specifications.

5. ADJUSTMENT OF MANHOLE FRAMES AND LIDS:
The manholes shall not be adjusted until the pavement is completed, at which time the center of each manhole lid shall be relocated from references previously established by the Developer and/or Contractor. The pavement shall be cut as further described and base material removed to permit removal of the cover. The manhole shall then be brought to proper grade. See also the City Standards.

6. ADJUSTMENT OF MONUMENTS AND CAST IRON FRAMES AND COVERS:
Monuments and monument castings shall be adjusted to grade in the same manner as for manholes.

7. ADJUSTMENT OF VALVE BOX CASTINGS:
Adjustment of valve box castings shall be made in the same manner as for manholes.

8. CURB AND GUTTER:
The standard curb and gutter section used in Arlington is shown in the Standard Details.

a. Materials:
Materials shall meet the requirements of the following Sections of the WSDOT/APWA Standard Specifications:

Portland Cement	9-01
Concrete Aggregate	9-03
Reinforcing Steel	9-07
Pre-molded Joint Filler	9-04
Curing Compounds	9-23

The Portland Cement Concrete shall meet the requirements of Section 5-05 of the WSDOT/APWA Standard Specifications. Concrete mix for curbs shall be Class 3000. Slump of the concrete shall not exceed 3-1/2 inches.

All new curb and gutter shall be placed over not less than 2 inches of Crushed Surfacing Top Course compacted to 95 maximum density.

Forms may be of wood or metal at the option of the contractor, provided that the forms as set will result in a curb, or curb and gutter of the specified thickness, cross section, grade and alignment shown on the approved drawings and Standard Plans. Placement & curing per City Standards.

9. CEMENT CONCRETE DRIVEWAY:
The standard driveway section used in Arlington is shown in the Standard Detail.

a. Materials:
Materials shall meet the requirements of the following Sections of the WSDOT/APWA Standard Specifications:

Portland Cement	9-01
Fine Aggregate	9-03
Coarse Aggregate	9-03
Joint Materials	9-04
Curing and Admixtures	9-23

The concrete mix shall be as specified for Class 3000 and the slump of the concrete shall not exceed 3 inches.

A minimum of 2 inches of Crushed Surfacing Top Course shall be compacted to 95% maximum density prior to any placement of concrete.

b. Construction Requirements:
The city engineer shall have the authority to restrict the number, size and location of access driveways.

Driveway aprons shall be constructed per Standard Plans as applicable. The minimum thickness of the driveway apron shall be 6 inches, placed over a minimum of 2 inches of Crushed surface Top Course compacted to 95% maximum density over a compacted subgrade. In all cases, subgrade and rock grade shall be approved by the public works inspector prior to concrete being placed. Driveway aprons over 15 feet wide shall have an expansion joint placed in the center of the apron.

c. Grade:
The maximum recommended grade is 8. Vertical curves should be used for smooth transitions at significant grade differentials.

d. Residential Driveways:
Width:
The maximum width shall be 25 feet at dimension "1" on Standard Plan Nos. R-7 and R-8.
Grade:
The maximum recommended grade is 15. Grade changes that exceed 16 shall require vertical curves to connect tangents.

10. CEMENT CONCRETE SIDEWALK:

a. Materials:
Materials shall meet the requirements of the following Sections of the WSDOT/APWA Standard Specifications:

Cement Concrete Class 3000	6-02
Portland Cement	9-01
Aggregates	9-03
Pre-molded Joint Filler	9-04
Concrete Curing Materials and Admixtures	9-23

Slump of the concrete mix shall not exceed 3-1/2 inches. Lamp black coloring agent for matching the color of newly constructed cement concrete sidewalks to the color of adjacent existing cement concrete sidewalks shall be added to the concrete during mixing in an amount not to exceed 1-1/2 pounds per cubic yard of concrete. No lamp black shall be used in curb ramps.
The use of Calcium Chloride as an admixture is prohibited.

11. PARKING LOTS:

a. General:
Off street parking lots shall be constructed in conformance with the requirements for number of stalls and landscaping as noted in the Unified Development Code.

b. Construction:
All parking lot construction shall be inspected by the Public Works Department for conformance to plans for size, layout, drainage control and structural section. The minimum acceptable structural section for parking lots shall be 2 inches of Class "B" Asphalt placed over 4 inches of Crushed Surfacing Top Course, unless otherwise approved by the city engineer. Prior to placing any surface material, it will be the responsibility of the developer/contractor to provide density test reports certified by a professional engineer registered in the State of Washington. Crush Surfacing Top Course shall be compacted to 95 maximum density. Density testing for asphalt pavement including the necessity and frequency of core samples will be determined by the engineer on a case by case basis.

c. Handicap Requirements:
Handicap parking stalls shall meet the requirements of Washington State Regulations for Barrier Free Facilities (WAC 51-20).
Safe, convenient handicap access is required from the street to all buildings on site. This is in addition to safe, convenient handicap access between buildings.

12. TRAFFIC CONTROL SIGNING AND STRIPING:
All traffic control devices, signing, striping and other pavement delineation shall conform to the Manual on Uniform Traffic Control Devices (MUTCD). It shall be the developer's responsibility to furnish all materials and labor as required to install all traffic control as required by the city traffic engineer. All required signing (traffic control and street name signs), striping, and other delineation as required, shall be shown on the street improvement plans prior to plan approval. Developer shall supply the city with a duplicate copy of all street name signs.

13. UNDERGROUND UTILITIES:

a. General:
1. The WSDOT/APWA Standard Specifications shall apply unless otherwise stated below.
2. When trenching through existing pavement, the open cut shall be a neat line made by either saw cutting or jackhammering a continuous line. Saw cutting will be required unless the cut is made prior to reconstruction or an overlay.
3. Temporary pavement patch shall be as accomplished by using cold mix (MC 250), ATB and steel plates.
4. Permanent pavement patch shall be as specified on Standard Drawing R-23.
5. Where trench excavation equals or exceeds a depth of 4 feet, the developer/contractor shall provide, construct, maintain and remove, as required, safety systems that meet the requirements of the Washington Industrial Safety and Health Act, RCW 49.17, including WAC 296-155. The trench safety system shall be designed by a qualified person, and meet accepted engineering requirements (see WAC 296-155-660).
6. The developer/contractor shall furnish, install, and operate all necessary equipment to keep excavations above the foundation level free from water during construction, and shall dewater and dispose of the water so as not to cause injury to public or private property or nuisances to the public. Sufficient pumping equipment in good working condition shall be available at all times for all emergencies, including power outage, and shall have available at all time competent workmen for the operation of the pumping equipment.
7. Compaction tests will be required to ensure adequate compaction on all lifts. All compaction tests shall be conducted by a licenses testing laboratory at the expense of the developer/contractor. See Section 3 of these Specifications.
8. Reference to the city engineer below means the city's representative on site.
9. Water setting of backfill in trenches is not permitted.

14. PAVEMENT PATCHING:

a. Description:
This work shall consist of the patching of various types of pavement cuts, the performances of which shall be in accordance with these Specifications, the WSDOT/APWA Standard Specifications and Standard Plan R-23.

b. Materials:
All materials shall conform to the requirements specified for material in other sections of the WSDOT/APWA Standard Specifications as follows:
1. Asphalt concrete pavement patch shall be Class B meeting the requirements of Section 5-04.
2. Asphalt for temporary patch shall be MC 250 meeting the requirements of Section 9-02.
3. Cement concrete pavement patch shall be Class 4000 HES meeting the requirements of Section 6-02.
4. Crushed Surfacing Top Course shall meet the requirements of Section 9-03.3.(3).

15. CONTROLLED DENSITY FILL: If required to be per City Standards.

CATCH BASIN & MANHOLE METHODS OF CONSTRUCTION

1. LOCATIONS AND SPACING OF CATCH BASINS AND MANHOLES:
A catch basin or manhole will be required at all changes in storm drain diameters and changes in grade or alignment.
Storm drain pipes installed in easements shall be constructed as nearly as possible in the center of the easement, but in no case shall the pipe be within 5 feet of any structure or property line.
The maximum spacing between catch basins shall not exceed 300 feet. For roadways wider than 48 feet, the spacing shall not exceed 200 feet. Catch basin spacing based on percent of roadway grade are as follows:

Percent Grade	Maximum-Spacing
0.5 -1.5	150 feet
1.5-3.0	200 feet
3.0 – 8.0	300 feet
8.0 – 12.0	200 feet
> 12.0	150 feet

2. TRENCHING, PIPE INSTALLATION, AND COMPACTION:
Trenching, installation of pipe, placement of bedding, compaction requirements, and all other construction activities shall be in accordance with the sanitary sewer section of this document.

3. DEBRIS BARRIERS:
Debris barriers (trash rocks) may be required on culvert inlets, when in the opinion of the city engineer circumstances warrant the elimination of miscellaneous flowing debris, or are required for public safety.

4. ADJUSTMENT OF CASTINGS TO FINAL GRADE:
The cover of grating of a manhole or catch basin shall not be grouted to final grade until the final elevation of the pavement, gutter, ditch, or sidewalk in which it is to be placed has been established, and until permission thereafter is given by the engineer to grout the cover or grating in place. Covers shall be seated properly to prevent rocking.

5. TESTING:
Testing of storm drainage piping will be at the option of the city engineer. Testing may include TV inspection and videotaping.

6. OIL SEPARATORS:
All closed storm drain systems collecting runoff from paved areas in the public right-of-way or private property shall provide for floatable material separation (all separators) prior to discharge to the main storm drain system in the public right-of-way or to any infiltration system, unless otherwise approved by the city engineer.

7. GRATES AND COVERS:
All catch basin frame and grates in the curb line shall be depressed 0.10 feet below pavement/curb level. Solid frame and grates in the traveled roadway shall be flush.
All oil/water separator and detention control catch basin grates shall be of the locking type. Where grades are in excess of 4% on vertical curb and gutter sections, vaned grates shall be used.

8. CONNECTION TO CATCH BASINS:
All PVC connections to catch basins or manholes shall be made by grouting in an approved manhole adapter into which the PVC pipe is inserted.

9. CONNECTION OF ROOF/FOOTING/YARD DRAIN SYSTEMS:
In general, connections to a pipe system should be made only at catch basins or manholes. Wyes or tees will be allowed on roof/footing/yard drain systems for pipes 8 inches in diameter, or less, with cleanouts upstream of each wye or tee. Other uses of wyes or tees will be evaluated by the Engineer on a case-by-case basis.

STORM DRAINAGE MATERIALS

1. PIPE:
All pipe joints shall be rubber gasketed. Pipe materials that are allowed for use in storm sewer systems in the City of Arlington are as follows:

a) PVC Standard Sewer Pipe (DK 35, ASTM D 3034)
Shall be used unless otherwise approved by the City Engineer. Maintain 30 – inch minimum cover.

b) Ductile Iron
Same specifications as sanitary sewer usage.

c) Reinforced Concrete Pipe
No storm drain pipe between catch basins or manholes in the public right-of-way shall be less than 12 inch diameter, with the exception that 8 inch may be used between inlets and catch basins in runs of 50 feet or less.

d) HDPE Pipe (AASHTOM252, AASHTOM294, ASTM F 405, ASTM F 667)

e) PVC Rib Pipe (AASHTOM304, ASTM F 794)

2. BEDDING:
Bedding materials are the same as for sanitary sewer pipe. See bedding requirements for flexible (PVC) and rigid (ductile iron, concrete) pipe in Section 3.

3. INLETS, CATCH BASINS, MANHOLES:
Inlets, catch basins, and manholes shall be in conformance with Section 7-05 of the WSDOT/APWA Standard Specifications except as modified by City of Arlington standard details.

On Storm sewers with depths less than five feet to the invert of the lowest pipe, catch basins may be one of the following:
CB Type 1
CB Type 1-L
CB Type 2 (48", 54")
CB Type 2 (72", 96")

On storm sewers with depths five feet and over to invert of the lowest pipe, joining or inlet structures shall be CB Type 2 as shown on standard Drawings and shall be provided with a ladder. With approval by the Engineer, a pre-cast cone may be substituted for the top slab.

On storm sewers where more than two (2) storm sewer lines enter a catch basin or where the storm sewer pipe diameter is ≤ 12", use a type 1-L catch basin.

Where a structure is needed for access or for juncture of storm sewers, but not for catchment of silt, the structure shall be one of the following types of manhole in suitable size:
MH Type 1 (48",54")
MH Type 2 (72",96")

A through-curb inlet frame as shown in the Standard Drawings shall be used on roadways where conditions severely limit the effectiveness of a flat surface inlet. Examples of such conditions are road grades exceeding 12%, roadways with designated bikeways, and locations where there is a high likelihood of clogging from leaf fall or other debris, especially in sag vertical curves.

When used with this through-curb inlet frame, grate shall be the vaned grate in ductile iron, except that a standard grate in ductile iron may be used at the bottom of a sag vertical curve.

PIPE TABLE

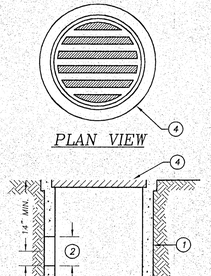
STEEL				ALUMINUM		
2 2/3 x 1/2 IN. CORRUGATION HELICAL... DIAMETER OF PIPE (INCHES)	ARCH PIPE (INCHES)	GAGE	BAND	3 x 1 IN. CORRUGATION HELICAL... DIAMETER OF PIPE (INCHES)	ARCH PIPE (INCHES)	
12 – 54	17x33 THRU 42x29	16	(a)	54 – 120		
60	49x33	14	24"	126 – 138	40x31 TO 112x75	
66 – 90	57x38 THRU 64x43	12	24"	144 –	117x79 TO 137x87	
96	71x47	10	24"		142x91	
	77x52 THRU 83x57	8	24"			
				ANNULAR RECORRUGATED ENDS OR ANNULAR CORRUGATED PIPES DIAMETER		
			12"	12"-84", TYPES B,D,&F*		
				NOTE: SAME GAGE AS PIPE'S		
				*TYPE F IS 10 1/2" WIDE		

A: BAND SIZE 12" FOR PIPE LESS THAN 42" DIAMETER AND 49" x 33" AND ARCH PIPE. BACKFILL AROUND PIPE MUST BE COMPACTED TO A SPECIFIED AASHTO T-99 DENSITY OF 90%. USE REASONABLE CARE IN HANDLING AND INSTALLATION.

CORRUGATED ALUMINUM PIPE AND COUPLING BANDS SHALL MEET THE REQUIREMENTS OF AASHTO M196 AND M197.

SPIRAL RIB PIPE DIAMETER				
			ANNULAR RECORRUGATED ENDS OR ANNULAR CORRUGATED PIPES DIAMETER	
18"-42"		16"	12"	<= instead 12"-84"; TYPES B,D,&F*
48"-60"		14"	21"	:NOTE: SAME GAGE AS PIPE'S.
66"-84"		12"	21"	: *TYPE F IS 10 1/2" WIDE

ALL NON-PERFORATED METAL PIPE SHALL HAVE NEOPRENE GASKETS AT THE JOINTS. O-RING GASKETS MAY BE USED FOR TYPE F COUPLING BAND.



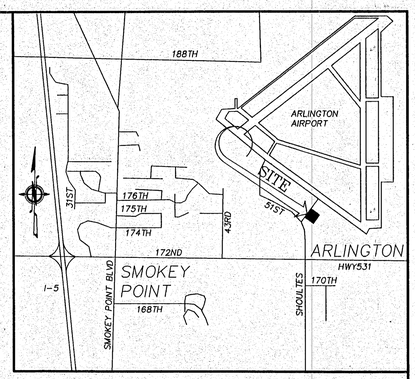
PLAN VIEW

ELEVATION VIEW

NOTES:
1. YARD DRAINS TO BE CONSTRUCTED FROM CONCRETE PIPE IN ACCORDANCE WITH ASTM C-14 UNLESS OTHERWISE SHOWN ON THE PLANS OR NOTED IN SPECIFICATIONS.
2. CUTOUT HOLE SIZE IN EQUAL TO OUTLET PIPE OUTSIDE DIAMETER PLUS YARD DRAIN WALL THICKNESS.
3. CONNECTION TO OUTLET PIPE TO BE MORTARED AND MADE FLUSH WITH INSIDE OF THE YARD DRAIN WALL.
4. CAST IRON BELL GRATE FITS INTO BELL RECESS AND EXTENDS FLUSH WITH FACE OF BELL. THE GRATE SHALL HAVE SLOTS (HOLES) THAT CONSTITUTE 50 PERCENT OPEN AREA FOR DRAINAGE. INLET BELL SURFACE SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
5. WASHED DRAIN ROCK – 6 INCHES MINIMUM DEPTH
6. VARIES 12 OR 18 INCHES
7. SPECIAL CAST YARD DRAIN MAY BE REQUIRED FOR MULTIPLE PIPE CONNECTIONS.

YARD DRAIN DETAIL

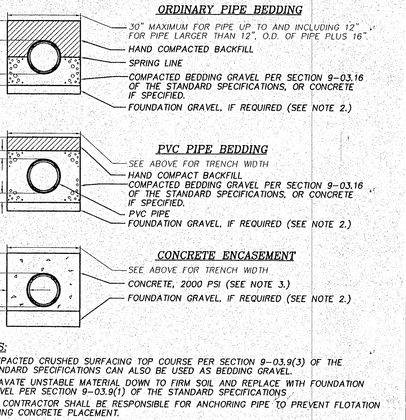
NOT TO SCALE (SEE CITY OF ARLINGTON CITY STD. SD-14)



VICINITY MAP

SCALE 1" = 2,000 FT.

PIPE BEDDING CLASSES



ORDINARY PIPE BEDDING
30" MAXIMUM FOR PIPE UP TO AND INCLUDING 12", FOR PIPE LARGER THAN 12", O.D. OF PIPE PLUS 16".
HAND COMPACTED BACKFILL
SPRING LINE
COMPACTED BEDDING GRAVEL PER SECTION 9-03.16 OF THE STANDARD SPECIFICATIONS, OR CONCRETE IF SPECIFIED.
FOUNDATION GRAVEL, IF REQUIRED (SEE NOTE 2.)

PVC PIPE BEDDING
SEE ABOVE FOR TRENCH WIDTH
HAND COMPACT BACKFILL
COMPACTED BEDDING GRAVEL PER SECTION 9-03.16 OF THE STANDARD SPECIFICATIONS, OR CONCRETE IF SPECIFIED.
PVC PIPE
FOUNDATION GRAVEL, IF REQUIRED (SEE NOTE 2.)

CONCRETE ENCASEMENT
SEE ABOVE FOR TRENCH WIDTH
CONCRETE, 2000 PSI (SEE NOTE 3.)
FOUNDATION GRAVEL, IF REQUIRED (SEE NOTE 2.)

NOTES:
1. COMPACTED CRUSHED SURFACING TOP COURSE PER SECTION 9-03.9(3) OF THE STANDARD SPECIFICATIONS CAN ALSO BE USED AS BEDDING GRAVEL.
2. EXCAVATE UNSTABLE MATERIAL DOWN TO FIRM SOIL AND REPLACE WITH FOUNDATION GRAVEL PER SECTION 9-03.9(1) OF THE STANDARD SPECIFICATIONS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANCHORING PIPE TO PREVENT FLOTATION DURING CONCRETE PLACEMENT.

TRENCH BACKFILL DETAIL

NO SCALE (SEE CITY OF ARLINGTON CITY STD. R-25)

CITY OF ARLINGTON
THIS SHEET HAS BEEN APPROVED PER CONDITIONS ON THE COVER SHEET.

CONSTRUCTION	AS-BUILT ACKNOWLEDGMENT
BY: CITY ENGINEER	BY: CITY ENGINEER
DATE: / /	DATE: 8/10/05

CITY OF ARLINGTON
AS-BUILT CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

THIS AS-BUILT PLAN SHEET HAS BEEN REVIEWED AND ACCEPTED AS A RECORD DRAWING. THE LICENSED DESIGN ENGINEER WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET ASSUMES FULL AND COMPLETE RESPONSIBILITY FOR THE ACCURACY THEREIN.

BY: CITY ENGINEER
DATE: / / THIS APPROVAL VALID FOR 18 MONTHS

REV. NO.	DESCRIPTION	INITIALS	DATE
1	CITY REVISIONS	MNF	7/22/03

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344

7/17/08

EXPIRES 6/20/08

PERCO
ENGINEERING P.C.
(PROFESSIONAL SERVICES CORP.)
9920 – 271st ST. NW
STANWOOD, WASH. 98292
PHONE: (360) 629-6710

GRADING & TESC NOTES & DETAILS
FOR
W. NEAL KARMAN

design	DRP
drawn	MNF
app'v'd	
date	6-20-03
dwg.	8 OF 8
scale	AS SHOWN
job no.	22081

File Name: C:\Jobs\karman\karman.DWG

SECTION 21, TOWNSHIP 31 N., RANGE 5 E., W.M.

LANDSCAPE AREA:
25' WIDE x 113' LONG = 2,825 SQ. FT.
(2) 5' WIDE x 18' LONG = 180 SQ. FT.
TOTAL LANDSCAPING AREA = 3,005 SQ. FT.

PLANTING SCHEDULE:
(1) (2) THUJA OCCIDENTALIS AMERICAN ARBORVITAE "EMERALD GREEN"
(2) (4) RHODODENDRON AZALEA "HINO CRIMSON"
(3) (4) HOSTA (FUNKIA) LILIACEAE "CHINESE SUNRISE"
ADDITIONAL SPACE WILL BE TAKEN UP BY GROUNDCOVER: APOCYNACEAE (VINCA) OR EQUAL

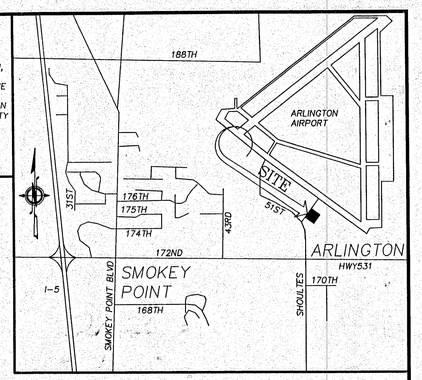
LANDSCAPING:
1. SHRUB MUST BE 5 PER 100 S.F.
2. ISLAND GROUND COVER = 4" POTS @ 18" ON CENTER.

Scale: 1" = 20'

UTILITY CONFLICT NOTE:
CAUTION:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT, BY POTHOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE @ 1-800-553-4344 AND THEN POTHOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL CONSULT PERCO ENGINEERING TO RESOLVE ALL PROBLEMS PRIOR

CALL 48 HOURS BEFORE YOU DIG 1-800-553-4344

A COPY OF CITY OF ARLINGTON STANDARD PLANS AND SPECIFICATIONS TO REMAIN ONSITE AT ALL TIMES.



VICINITY MAP
SCALE 1" = 2,000 FT.

ARLINGTON PROPERTIES INC.

N 33° 48' 20" E
140.00'
235.00'
EXISTING CULVERT
EXISTING GATE (TO REMAIN)
N 33° 48' 20" E
APRON 2
N 56° 11' 40" W
(3) FULL SPACES (AB) 9'x18' (TYP.)
23
24
25
N 56° 11' 40" W
TYPE III LANDSCAPING 25' x 113' 100% GRASS
5' WALKWAY
(3) FULL SPACES (AB) 9'x18' (TYP.)
20
21
22
235.00'
10' ROLL-UP DOOR
OWNERS (4) PARKING SPACES ALLOWED INSIDE BUILDING
2-1/2" MIN. OR MATCH EXISTING WITCHEVER IS GREATER AC ASPHALT PAVING TO MATCH LINE & GRADE OF EXISTING APRON SAWCUT, TACK & SEAL JOINT
EXISTING TARMAC & AIRPLANE TIEDOWN AREA
PEDESTRIAN 4' GATE
PROPOSED 5'x18' LANDSCAPING W/ BEAUTY BARK
(5) FULL 9'x18' SPACES (3) COMPACT 8'x16' SPACES
C1 C2 C3
AREA LIGHT EACH CORNER (TYP.)
1 2 3 4 5 6 7 8
5' SIDEWALK
BUILDING (AB) 160' x 150' FF = 127.20'
PAVED APRON
EXTRUDED CURB PER CITY STD. R-22 (TYP.)
PROPOSED 5'x18' LANDSCAPING W/ BEAUTY BARK
PEDESTRIAN 4' GATE
231.50'
N 33° 48' 20" E
2-1/2" ASPHALT PAVING WITH THICKENED EDGE
32'
32'
LOT 399
55,216 SQ. FT.
1.2676 ACRES
FENCE BY CITY
FENCE BY OWNER
R CITY STD.
GAS GAS GAS GAS GAS GAS
N 56° 11' 40" W
GAS METERS (AB)
POWER METERS (AB)
POWER VAULT (AB)
20' EASEMENT
9 10 11 12
9'x18' (TYP.) (AB)
C13 C14 C15 C16 C17 C18 C19 C26
FENCE (AB)
3 FULL SPACES 9'x18' (TYP.) (AB)
1 HANDICAP 15'x18'
2-1/2" ASPHALT PAVING WITH THICKENED EDGE
230.31'
(7) COMPACT SPACES 8'x16' (TYP.)
PAVEMENT (AB)
PROPOSED 20' GATE
EXISTING FENCE (TO REMAIN)
S 87° 03' 48" W
573.40'
FENCE (AB)
N 87° 03' 48" E
5.85'
EXISTING FENCE (TO REMAIN HERE TO EAST)
EXISTING SANITARY SEWER 8" PVC

T.B.M.:
BRASS WSDOT DESIGNATION "GP31531-162"
LOCATED AT N.E. SIDE JCT. SR531 & SR005 ON 51st AVE N.E.
END OF S/W.
ELEV. = 125.03 MSL
(NAVD 88)

PROJECT INFORMATION:
TAX NO.: CITY PROPERTY
SITE ADDRESS: NO ADDRESS HAS BEEN ASSIGNED
TOTAL AREA: 174,240 S.F. (4.0 AC.)
EX. SOIL: LYNNWOOD TYPE A
EXISTING GROUND COVER = GRASS

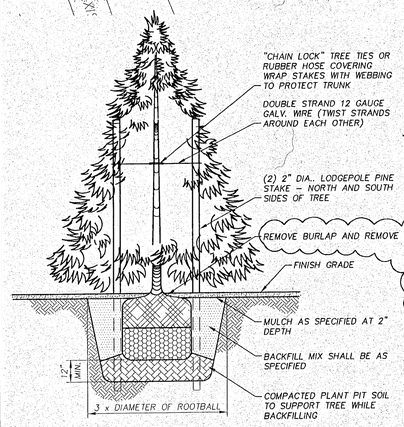
GEOTECHNICAL ENGINEER:
WESTERN GEOTECHNICAL CONSULTANTS
4183 SALTSPRINGS DRIVE
FERNDALE, WA 98248
(360) 380-2507

SITE INFORMATION:
TOTAL LANDSCAPING AREA: 3,231 SQ. FT.
PARKING SPACES (REQUIRED): 25
PARKING SPACES (PROVIDED): 30
IMPERVIOUS AREA: 52,145 SQ. FT.
BUILDING AREA: 25,000 SQ. FT. (MAIN FLOOR)
3,500 SQ. FT. (UPPER FLOOR)

SURVEYOR:
PERCO ENGINEERING, P.C.
9920 271st ST. SW
STANWOOD, WA 98292
(360) 629-6710

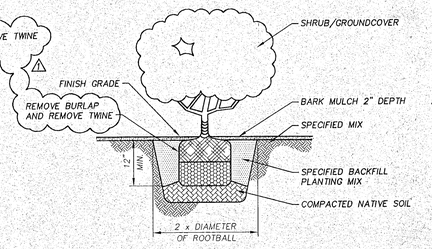
APPLICANT:
W. NEAL KARMAN
1725 VERNON ROAD
LAKE STEVENS, WA 98258
(425) 418-4299

OWNER:
W. NEAL KARMAN
1725 VERNON ROAD
LAKE STEVENS, WA 98258
(425) 418-4299

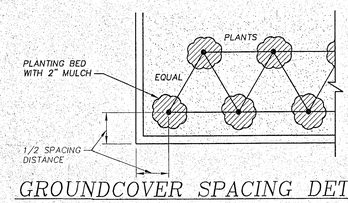


NOTE:
STAKES WILL BE DRIVEN INTO GROUND, TO AN ACCEPTABLE DEPTH TO PROPERLY SECURE NEWLY PLANTED TREE.

EVERGREEN TREE DETAIL
NO SCALE



SHRUB/GROUNDCOVER PLANTING DETAIL
NO SCALE



GROUNDCOVER SPACING DETAIL
NO SCALE

CITY OF ARLINGTON
THIS SHEET HAS BEEN APPROVED PER CONDITIONS ON THE COVER SHEET.

CONSTRUCTION	AS-BUILT ACKNOWLEDGMENT
BY: _____ CITY ENGINEER	BY: _____ CITY ENGINEER
DATE: / /	DATE: 8/10/06

CITY OF ARLINGTON
AS-BUILT CONSTRUCTION DRAWING REVIEW ACKNOWLEDGMENT

THIS AS-BUILT PLAN SHEET HAS BEEN REVIEWED AND ACCEPTED AS A RECORD DRAWING. THE LICENSED DESIGN ENGINEER WHOSE STAMP AND SIGNATURE APPEAR ON THIS SHEET ASSUMES FULL AND COMPLETE RESPONSIBILITY FOR THE ACCURACY THEREIN.

BY: _____ CITY ENGINEER

DATE: _____ THIS APPROVAL VALID FOR 18 MONTHS

REV. NO.	DESCRIPTION	INITIALS	DATE
1	CITY REVISIONS	MNF	7/22/03

1/17/06

DANIEL R. PERCO 30764 REGISTERED PROFESSIONAL ENGINEER
EXPIRES 6/20/08

FILE #: MN-03-031

PERCO
ENGINEERING P.C.
(PROFESSIONAL SERVICES CORP.)
9920 - 271st ST. NW
STANWOOD, WASH. 98292
PHONE: (360) 629-6710

LANDSCAPING & STRIPING PLAN
FOR
W. NEAL KARMAN

design DRP
drawn MNF
app'v'd'
date 6-20-03
dwg. 1 OF 1
scale 1" = 20'
job no. 22081

File Name: D:\Jobs\karman\karman.DWG