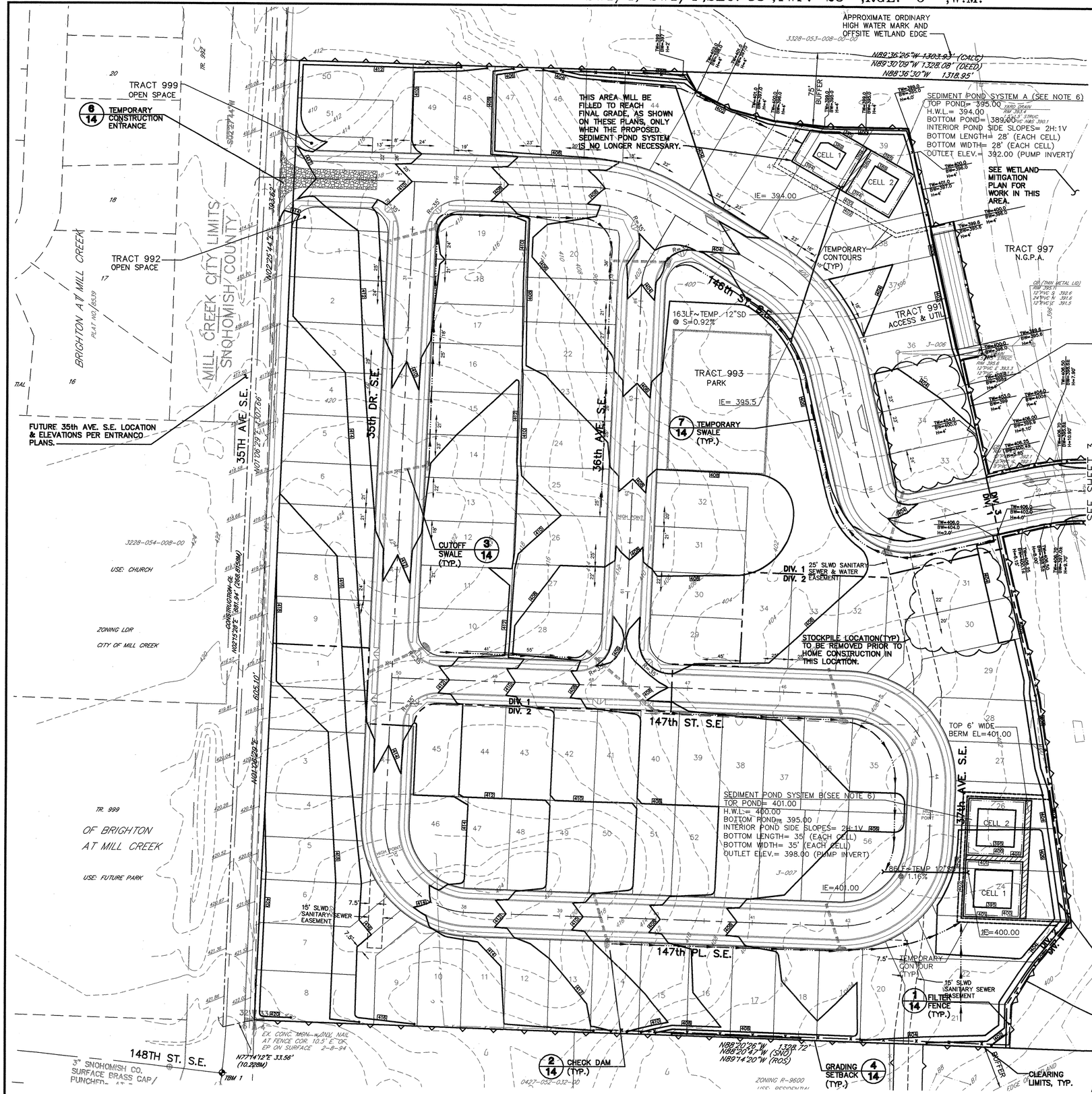
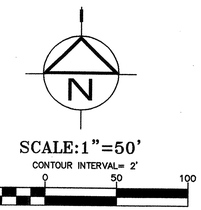
SW1/4, SW1/4 ,SEC. 33 ,TWP. 28 ,RGE. 5 ,W.M.





EARTHWORK QUANTITIES

METHOD:	AVERAGE END AREA (BY EARTHWORK SERVICES, INC.)
CUT:	79,109 C.Y.
FILL:	63,240 C.Y.
STRIPPING:	44, 836 C.Y.

NOTES:

1. RAW VOLUMES ARE CALCULATED AFTER THE EXISTING TERRAIN HAS BEEN STRIPPED, THUS CREATING LESS CUT AND MORE FILL OF SUITABLE MATERIAL.
2. RAW VOLUMES HAVE NOT BEEN ADJUSTED TO REFLECT SHRINK OR SWELL FOR COMPACTION & EXPANSION AND ARE VOLUMETRIC AREAS ONLY.
3. A STRIPPING DEPTH OF 12" WAS APPLIED TO THE EXISTING TERRAIN. A DEPTH TO SUBGRADE OF 6" WAS USED FOR ROAD A. A DEPTH TO SUBGRADE OF 5" WAS USED FOR ROADS B-H.
4. THE ABOVE QUANTITIES ARE ESTIMATES ONLY AND ARE LISTED SOLELY FOR PERMITTING PROCESSES. THEY ARE NOT TO BE USED FOR BIDDING PURPOSES.

NOTES:

1. ALL NECESSARY CONSTRUCTION EASEMENTS AND PERMITS SHALL BE OBTAINED AS REQUIRED PRIOR TO THE START OF CONSTRUCTION.
2. TEMPORARY COVER (TEMPORARY SEEDING, MULCHING & MATTING, CLEAR PLASTIC COVERING) SHALL BE INSTALLED IF AN AREA IS TO REMAIN UNWORKED FOR LONGER THAN 7 DAYS (MAY 1 TO SEPTEMBER 30), OR LONGER THAN 2 DAYS (OCTOBER 1 TO APRIL 30).
3. ANY AREA TO REMAIN UNWORKED FOR MORE THAN 7 DAYS SHALL BE SEEDED WITH THE TEMPORARY SEED MIX OR AN EQUIVALENT MIX THAT WILL PROVIDE RAPID PROTECTION. IF THE DISTURBED AREA IS TO REMAIN UNWORKED FOR A YEAR OR MORE, OR THE AREA HAS REACHED FINAL GRADE, PERMANENT SEED MIX OR AN EQUIVALENT MIX SHALL BE APPLIED. SEE TEMPORARY & PERMANENT SEEDING NOTES LOCATED ON SHEET 13.
4. GRADING DEPICTED AS PART OF THIS PLAN REPRESENTS ROUGH GRADING NECESSARY FOR ROAD & UTILITY INSTALLATION. IT IS INTENDED THE FINE TUNE LOT GRADING WILL OCCUR DURING THE BUILDING PERMIT STAGE, BY THE BUILDER (SEE DETAIL 9, SHT. 14).
5. TEMPORARY N.G.P.A. FENCE (SEE DETAIL 8, SHT. 14) SHALL BE INSTALLED ALONG THE LIMITS OF ALL N.G.P.A. TRACTS.
6. A TWO CELLED SEDIMENT POND SYSTEM WILL BE UTILIZED FOR TESC. NO DIRECT CONNECTION WILL BE PROVIDED BETWEEN THE TWO CELLS. ALL SEDIMENT LADEN RUNOFF WILL BE DIRECTED TO CELL #1 WHERE SEDIMENT WILL SETTLE OUT PRIOR TO BEING PUMPED TO CELL 2. STORM WATER RUNOFF IN CELL 2 WILL BE TREATED AND/OR TESTED PRIOR TO BEING PUMPED & SPRINKLERED THROUGHOUT THE ONSITE WETLAND AREA.
7. UPON COMPLETION OF THE PROPOSED WALLS, SEDIMENT POND OVERFLOW WILL BE OVER THE TOP OF THE WALL. THIS IS A TEMPORARY SITUATION DURING WHICH THE CONTRACTOR SHALL TAKE NECESSARY MEASURES (I.E. TEMPORARY PIPING, ARMORING, ETC.) TO PROTECT THE STABILITY/INTEGRITY OF THE WALL.
8. THE PROJECT GEOTECH SHALL PROVIDE COMPACTION TESTING. ALL TESTS SHALL BE SENT TO SNOHOMISH COUNTY P.D.S. ATTN: DWAYNE OVERHOLSER. CERTIFICATION SHALL BE PROVIDED TO SNOHOMISH COUNTY ON FILL PLACED AND COMPACTED UNDER HIS/HER SUPERVISION.
9. EXCESS MATERIAL SHALL BE HAULED TO A COUNTY APPROVED LOCATION.
10. THE PROJECT GEOTECH SHALL BE ONSITE TO MONITOR CONSTRUCTION OF THE REQUIRED WALLS. INSTALLATION OF ALL WALLS SHALL CONFORM TO ALL GEOTECHNICAL RECOMMENDATIONS.
11. ALL GRADING AND CONSTRUCTION ACTIVITY SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.
12. THE PROPOSED GRADES SHOWN ON THESE PLANS IS PLUS OR MINUS TWO TO THREE FEET (± 2'-3') TO BALANCE THE SITE.

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

"AS-BUILT"

WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS

BY: _____ DATE 3/3/03
PROJECT ENGINEER/SURVEYOR

BY: _____ DATE 3/4/03
PROJECT DEVELOPER

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION

BY _____

R/W PERMIT NO. _____

NO. | REVISION | DATE | BY

FILENAME: P:\Projects\99-108\dwg\AS-BUILT\wg0905.dwg
LAST PLOTTED: 2003-03-03 08:35 BY: Greg
LAND/CIVIL/STRUCTURAL/ENVIRONMENTAL PLANNING SURVEYING

G1 GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

CARLSON O. VANIER — STATE OF WASHINGTON — 31784 — REGISTERED PROFESSIONAL ENGINEER — EXPIRES:

DAVID K. ROUDEBUSH — STATE OF WASHINGTON — 21516 — REGISTERED PROFESSIONAL LAND SURVEYOR — EXPIRES: JAN. 12, 2004

VILLAGE AT WEBSTER'S POND
CLEARING, GRADING & T.E.S.C. PLAN

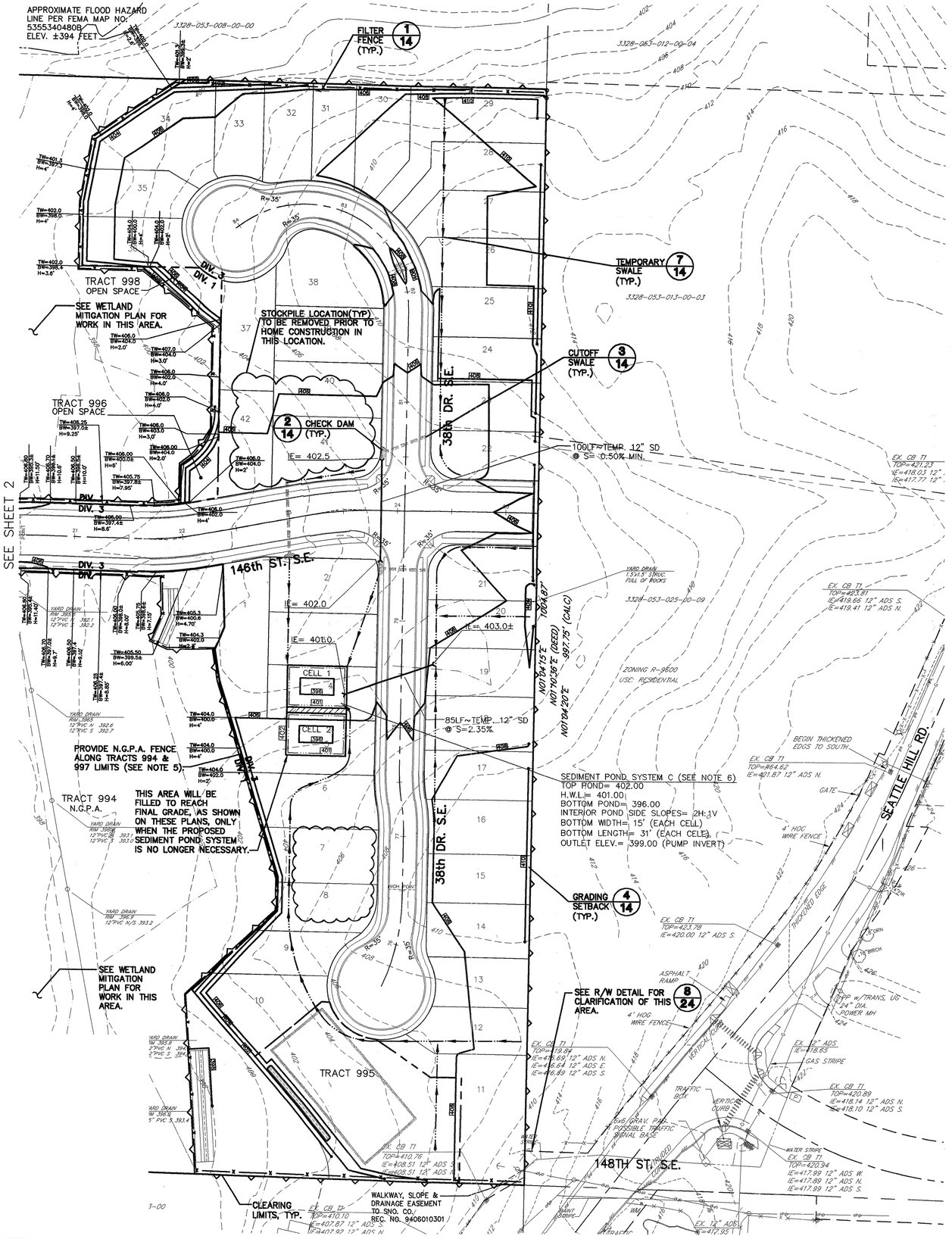
SNOHOMISH COUNTY WASHINGTON

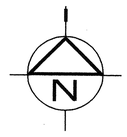
SHT 2 OF 26

JOB NO:99-8040

SHDEV-2373

SW1/4, SW1/4, SEC. 33, TWP. 28 N., RGE. 5 E., W.M.





EARTHWORK QUANTITIES

METHOD= AVERAGE END AREA (BY EARTHWORK SERVICES, INC.)
CUT= 79,109 C.Y.
FILL= 63,240 C.Y.
STRIPPING= 44, 836 C.Y.

NOTES:

1. RAW VOLUMES ARE CALCULATED AFTER THE EXISTING TERRAIN HAS BEEN STRIPPED, THUS CREATING LESS CUT AND MORE FILL OF SUITABLE MATERIAL.
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NOTES:

1. ALL NECESSARY CONSTRUCTION EASEMENTS AND PERMITS SHALL BE OBTAINED AS REQUIRED PRIOR TO THE START OF CONSTRUCTION.
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4. GRADING DEPICTED AS PART OF THIS PLAN REPRESENTS ROUGH GRADING NECESSARY FOR ROAD & UTILITY INSTALLATION. IT IS INTENDED THE FINE TUNE LOT GRADING WILL OCCUR DURING THE BUILDING PERMIT STAGE, BY THE BUILDER (SEE DETAIL 9, SHT. 14).
5. TEMPORARY N.G.P.A. FENCE (SEE DETAIL 8, SHT. 14) SHALL BE INSTALLED ALONG THE LIMITS OF ALL N.G.P.A. TRACTS.
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10. ALL GRADING AND CONSTRUCTION ACTIVITY SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.
11. THE PROPOSED GRADES SHOWN ON THESE PLANS IS PLUS OR MINUS TWO TO THREE FEET (± 2'–3') TO BALANCE THE SITE.

NO.	REVISION	DATE	BY

FILENAME: P:\Projects\98-8040\Dgn\plan\pf98-8040.dgn
UPDATED: FRI 11 DEC 2009 13:39:41 -0800(Last Plot 291 29 in layo
LAST PLOTTED BY: DEBBIE(DOMAIN) PLAN SHT 3

O. VANER 2009 EXPIRES 3-5-10 REGISTERED PROFESSIONAL ENGINEER

GROUP FOUR, Inc.
16030 JUANITA–WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775–4581 • (206)362–4244 • FAX(206)362–3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

VILLAGE AT WEBSTER'S POND
CLEARING, GRADING & T.E.S.C. PLAN

SNOHOMISH COUNTY WASHINGTON

"AS-BUILT"

WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS–BUILT ARE LOCATED AS SHOWN ON THESE PLANS

BY:_____ _____
PROJECT ENGINEER/SURVEYOR DATE

BY:_____ _____
PROJECT DEVELOPER DATE

PFN#: 98–108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____ 12/11/09
R/W PERMIT NO: 01109147

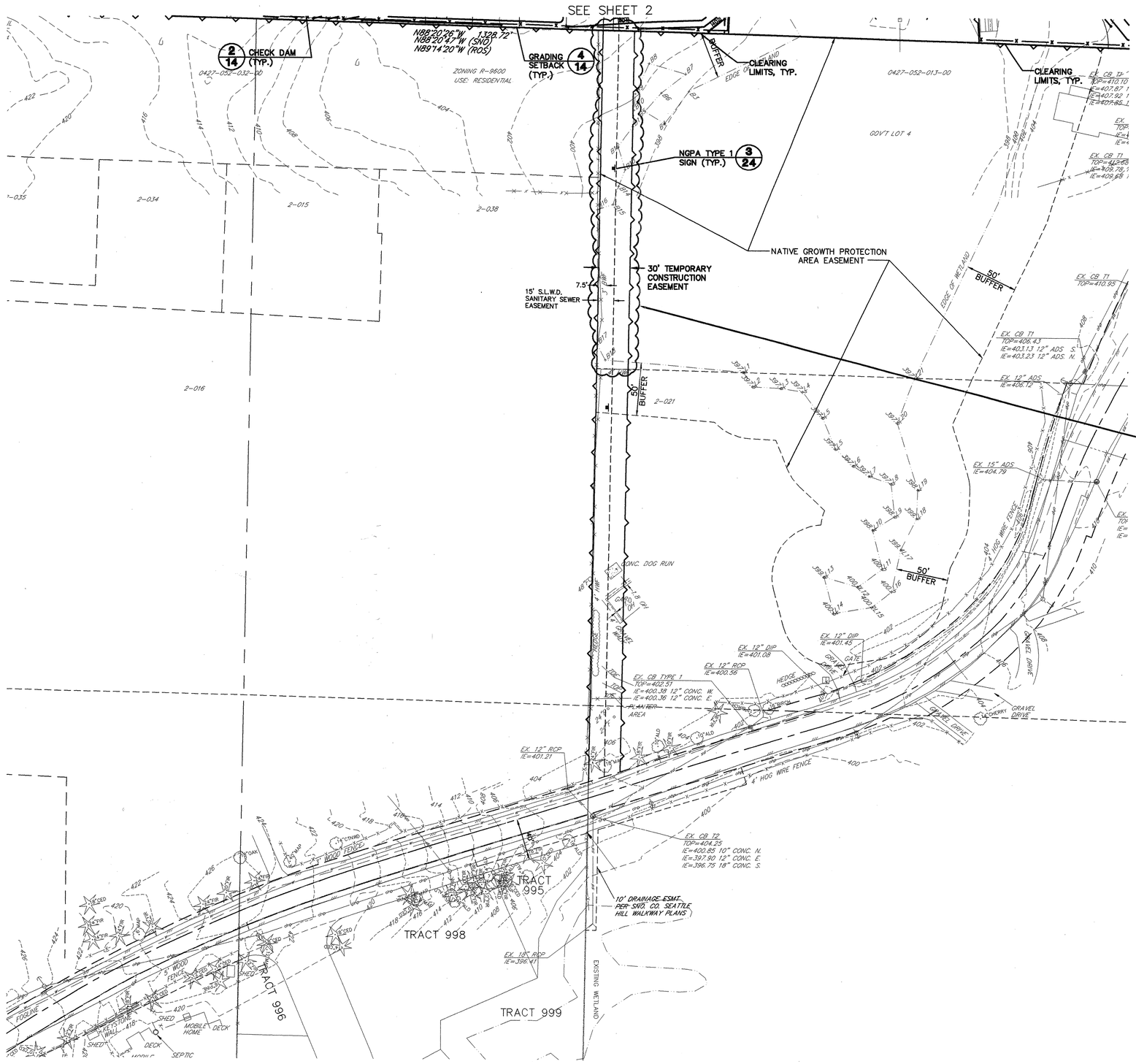
CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

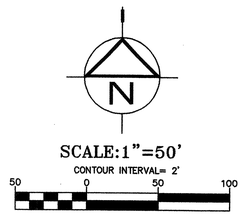
SHT 3 OF 26

JOB NO:99–8040

HDEV–2374

SW1/4, SW1/4, SEC. 33, TWP. 28, RGE. 5, W.M.





CONSTRUCTION IN THIS AREA

1. CLEAR VEGETATION.
2. REMOVE AND STOCKPILE TOP SOIL AND PEAT TYPE SOILS FOR REPLACEMENT LATER. REMOVAL SHALL BE OVER ENTIRE 30' WIDTH OF THE TEMPORARY ESTIMATE.
3. INSTALL SEWER LINE.
4. REPLACE TOPSOIL AND WETLAND TYPE SOILS OVER 30' WIDTH.
5. REPLANT SPIREA.

NO.	REVISION	DATE	BY

FILENAME: D:\TYLI\JOBS\99-8040\dwg\base\grd01.dwg
PLOTTED: Jul 17, 2002 - 11:44 AM BY TIM Hinch
LAYOUT: LAYOUT1 EGRESS/GRADING PLAN SHT 3A

C. VANIER 2002 STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER
EXPIRES 2/3/04

G1 GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4344 • FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY:
DATE: DATE:
APPROVED BY:
DATE:

VILLAGE AT WEBSTER'S POND
CLEARING, GRADING & T.E.S.C. PLAN

SNOHOMISH COUNTY WASHINGTON

"AS-BUILT"

WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS

BY: _____ DATE
PROJECT ENGINEER/SURVEYOR

BY: _____ DATE
PROJECT DEVELOPER

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____ 10/17/02
R/W PERMIT NO. 01107447

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

SHT 3A OF 26

JOB NO:99-8040

HDEV-2375

SW1/4, SW1/4, SEC. 33, TWP. 28, RGE. 5, W.M.

LEGEND

- T.F.W. = TOP OF FOUNDATION WALL
- F.F. = FINISHED FLOOR
- 405.0 = CONSTRUCTION GRADE ELEVATION (TOP OF TOPSOIL ELEVATION)
- 414.53 = PROPOSED FUTURE ELEVATION – 35TH AVE. S.E. (PER SNOHOMISH COUNTY DEPT. PUBLIC WORKS PROJECT NO. RC 1069 AS TAKEN FROM ENTRANCO 90% REVIEW SUBMITTAL PLANS.)

NOTES:

1. STRUCTURAL PAD GRADE IS APPROXIMATELY 1.5' BELOW THE T.F.W. ELEVATION.
2. FINISHED GRADE (BY BUILDER) IN THE AREA OF THE PROPOSED BUILDINGS IS EXPECTED TO BE ROUGHLY 6" BELOW THE T.F.W. ELEVATION.

"AS-BUILT"

WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS

BY: _____ DATE
PROJECT ENGINEER/SURVEYOR

BY: _____ DATE
PROJECT DEVELOPER

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____
R/W PERMIT NO. 01107747

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

NO. | REVISION | DATE | BY

FILENAME: P:\Proj\98-108\dwg\Sht1.dgn 10/20/00, dwg
PLOTTED: 10/20/00 BY: CAMERON VANIER
LAND LAYOUT/ GRADING/ DETAILED GRADING SH 4 - 11 inch

2002 CAMERON O. VANIER STATE OF WASHINGTON 31784 REGISTERED PROFESSIONAL ENGINEER
EXPIRES: 3-8-04

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING | ENGINEERING | PLANNING | MANAGEMENT
DRAWN BY: | CHECKED BY: | APPROVED BY:
DATE: | DATE: | DATE:

VILLAGE AT WEBSTER'S POND
DETAILED GRADING PLAN

SNOHOMISH COUNTY WASHINGTON

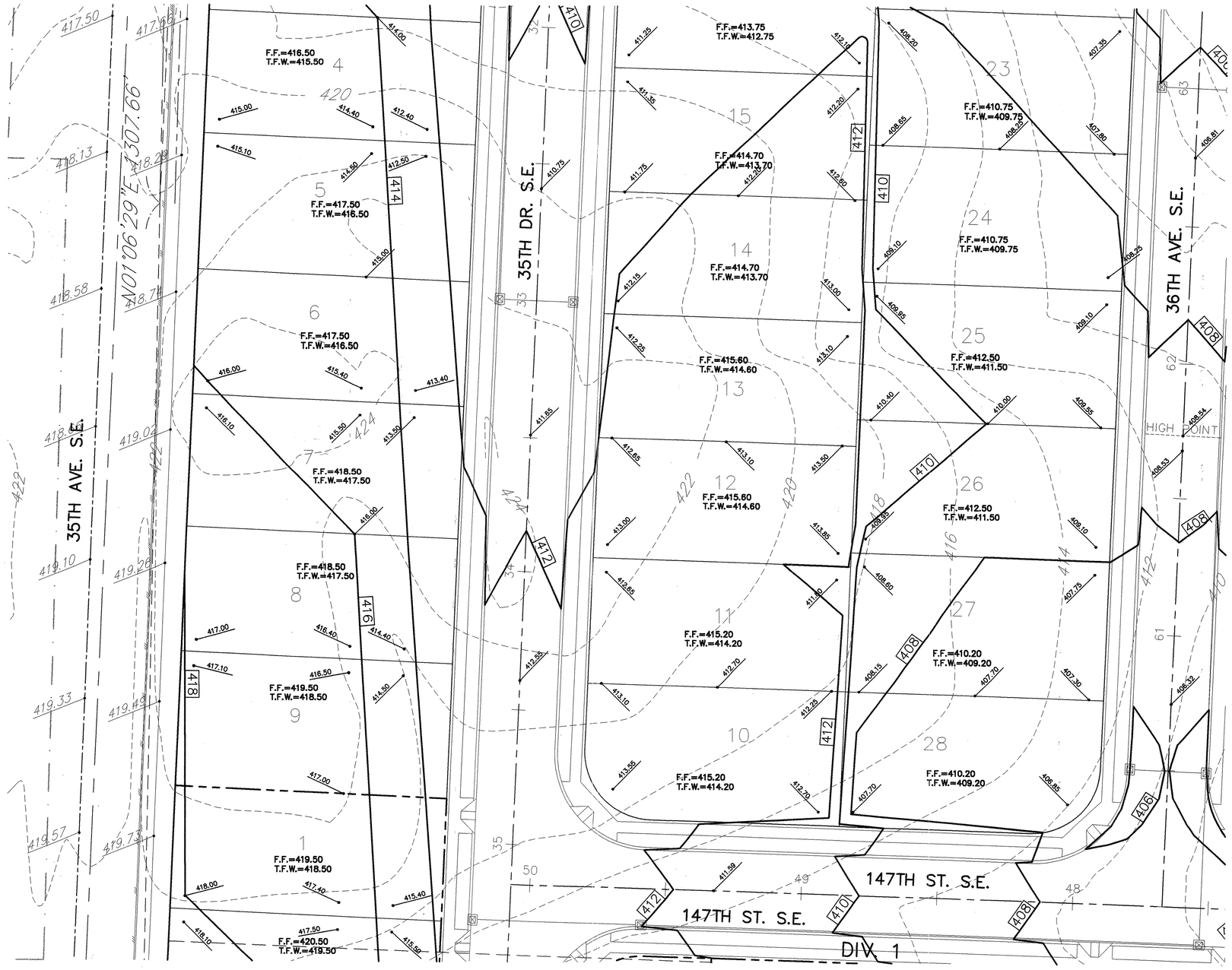
SHT 4 OF 26

JOB NO: 99-8040

HDEV-2376

SW1/4, SW1/4, SEC. 33, TWP. 28, RGE. 5, W.M.

SEE SHEET 4



SEE SHEET 8

SEE SHEET 6

LEGEND

- T.F.W. = TOP OF FOUNDATION WALL
- F.F. = FINISHED FLOOR
- 405.0 = CONSTRUCTION GRADE ELEVATION (TOP OF TOPSOIL ELEVATION)
- 414.53 = PROPOSED FUTURE ELEVATION – 35TH AVE. S.E. (PER SNOHOMISH COUNTY DEPT. PUBLIC WORKS PROJECT NO. RC 1069 AS TAKEN FROM ENTRANCO 90% REVIEW SUBMITTAL PLANS.)

NOTES:

1. STRUCTURAL PAD GRADE IS APPROXIMATELY 1.5' BELOW THE T.F.W. ELEVATION.
2. FINISHED GRADE (BY BUILDER) IN THE AREA OF THE PROPOSED BUILDINGS IS EXPECTED TO BE ROUGHLY 6" BELOW THE T.F.W. ELEVATION.

"AS-BUILT"

WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS

BY: _____ DATE
PROJECT ENGINEER/SURVEYOR

BY: _____ DATE
PROJECT DEVELOPER

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____ 10/17/2002
R/W PERMIT NO. 01107947

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

NO.	REVISION	DATE	BY

FILENAME: P:\Projects\98-8040\dwg\Dwg\Dwg\98-8040 SHT 5 OF 26.dwg
PLOTTED: 10/17/2002 @ 10:38:28 AM BY Mark
LAST LAYOUT: GRADING DETAILED GRADING SHT 5

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Washington.
Signature: _____
Date: 10-17-02
Expires: 3-8-04

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

VILLAGE AT WEBSTER'S POND
DETAILED GRADING PLAN

SNOHOMISH COUNTY WASHINGTON

SHT 5 OF 26

JOB NO: 99-8040

HDEV-2377

SW1/4, SW1/4,SEC. 35 ,TWP. 28 ,RNGE. 5 ,W.M.

SEE SHEET 5

SCALE:1"=20'

CONTOUR INTERVAL= 2'

20 0 20 40

LEGEND

T.F.W.	=	TOP OF FOUNDATION WALL
F.F.	=	FINISHED FLOOR
405.0	=	CONSTRUCTION GRADE ELEVATION (TOP OF TOPSOIL ELEVATION)
414.53	=	PROPOSED FUTURE ELEVATION – 35TH AVE. S.E. (PER SNOHOMISH COUNTY DEPT. PUBLIC WORKS PROJECT NO. RC 1069 AS TAKEN FROM ENTRANCO 90% REVIEW SUBMITTAL PLANS.)

NOTES:

1. STRUCTURAL PAD GRADE IS APPROXIMATELY 1.5' BELOW THE T.F.W. ELEVATION.
2. FINISHED GRADE (BY BUILDER) IN THE AREA OF THE PROPOSED BUILDINGS IS EXPECTED TO BE ROUGHLY 6" BELOW THE T.F.W. ELEVATION.

"AS-BUILT"

WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS

BY:_____ DATE
PROJECT ENGINEER/SURVEYOR

BY:_____ DATE
PROJECT DEVELOPER

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY: 10/17/02
R/W PERMIT NO. CU11947

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

NO. | REVISION | DATE | BY

FILENAME: P:\7YEARS\99-8040\engr\landdevplans\
PLOTTED: Oct 17, 2002 - 8:36am
LAND/LAYOUT/GRADING/DETAILED GRADING 3of 6 @ Palapa

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

EXPIRES 3-4-04

VILLAGE AT WEBSTER'S POND
DETAILED GRADING PLAN

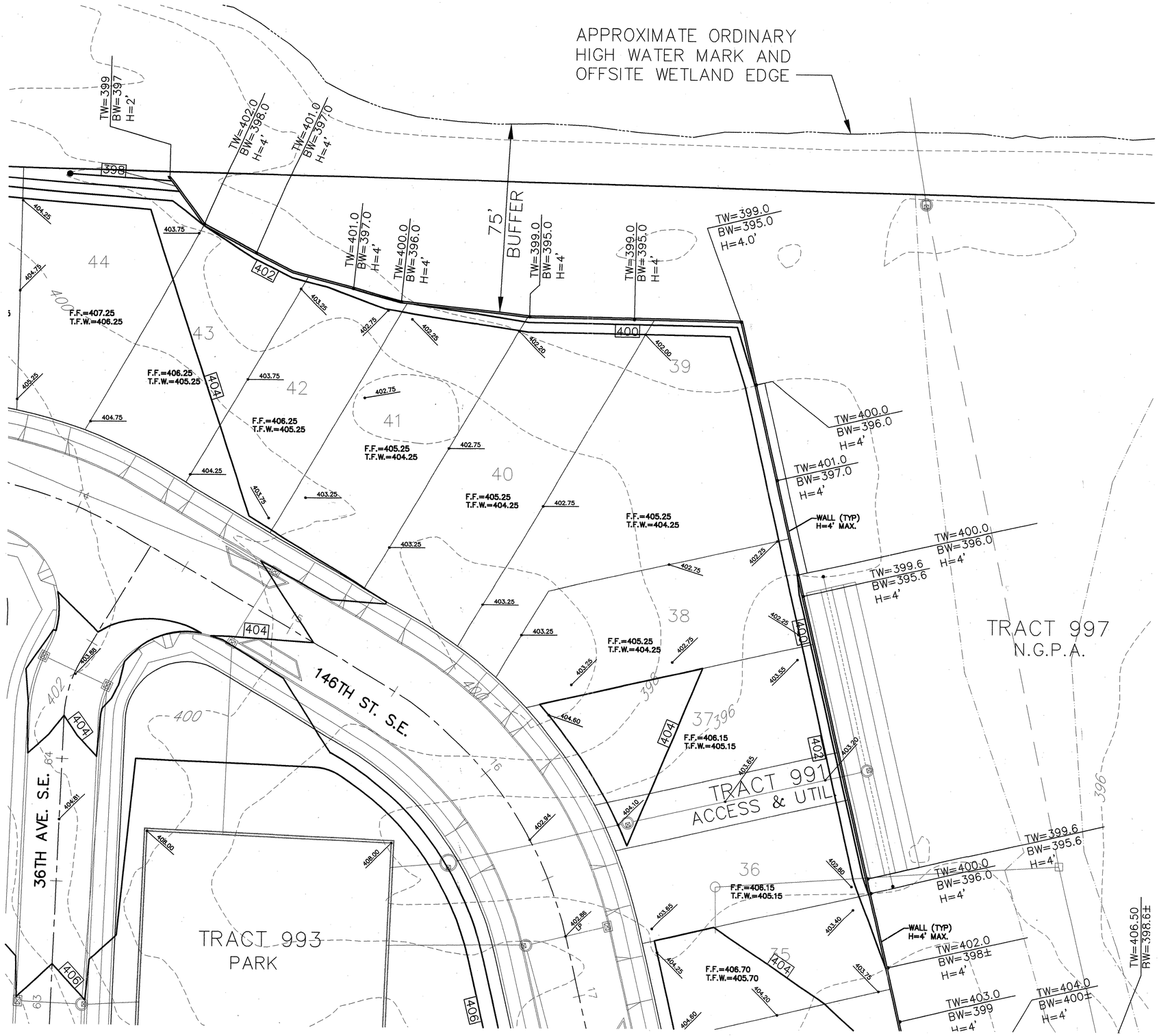
SNOHOMISH COUNTY WASHINGTON

SHT 6 OF 26

JOB NO:99-8040

HDEV-2378

SW1/4, SW1/4,SEC. 35 ,TWP. 28 ,RGE. 5 ,W.M.



SCALE:1"=20'

CONTOUR INTERVAL= 2'

20 0 20 40

LEGEND

T.F.W. = TOP OF FOUNDATION WALL

F.F. = FINISHED FLOOR

409.9 = CONSTRUCTION GRADE ELEVATION (TOP OF TOPSOIL ELEVATION)

414.53 = PROPOSED FUTURE ELEVATION – 35TH AVE. S.E. (PER SNOHOMISH COUNTY DEPT. PUBLIC WORKS PROJECT NO. RC 1069 AS TAKEN FROM ENTRANCO 90% REVIEW SUBMITTAL PLANS.)

NOTES:

1. STRUCTURAL PAD GRADE IS APPROXIMATELY 1.5' BELOW THE T.F.W. ELEVATION.
2. FINISHED GRADE (BY BUILDER) IN THE AREA OF THE PROPOSED BUILDINGS IS EXPECTED TO BE ROUGHLY 6" BELOW THE T.F.W. ELEVATION.

NO.	REVISION	DATE	BY

FILENAME: J:\99-8040\WP\DESIGN\ENG1140.DWG
PRINTED: MAY 08, 2001 07:05:15

O. VANDER STOEP 11-6-00 REGISTERED PROFESSIONAL ENGINEER 31784 STATE OF WASHINGTON

EXPIRES: 3-8-2001

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT

DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

VILLAGE AT WEBSTER'S POND
DETAILED GRADING PLAN

SNOHOMISH COUNTY WASHINGTON

SHT 7 OF 26

JOB NO: 99-8040

HDEV-2379

"AS-BUILT"

WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS

BY: _____ DATE _____
PROJECT ENGINEER/SURVEYOR

BY: _____ DATE _____
PROJECT DEVELOPER

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____
R/W PERMIT NO: 01187447

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

SW1/4, SW1/4, SEC. 33, TWP. 28, RGE. 5, W.M.

N

SCALE: 1" = 20'
CONTOUR INTERVAL= 2'
20 0 20 40

LEGEND

T.F.W. = TOP OF FOUNDATION WALL
F.F. = FINISHED FLOOR
408.0 = CONSTRUCTION GRADE ELEVATION (TOP OF TOPSOIL ELEVATION)
414.53 = PROPOSED FUTURE ELEVATION – 35TH AVE. S.E. (PER SNOHOMISH COUNTY DEPT. PUBLIC WORKS PROJECT NO. RC 1069 AS TAKEN FROM ENTRANCO 90% REVIEW SUBMITTAL PLANS.)

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2. FINISHED GRADE (BY BUILDER) IN THE AREA OF THE PROPOSED BUILDINGS IS EXPECTED TO BE ROUGHLY 6" BELOW THE T.F.W. ELEVATION.

NO. | REVISION | DATE | BY

FILENAME: J:\99-8040\WORK\DESDRAT\NG-V03
UPDATED: NOV 06 2001 07:03:31

CAMDEN O. VANIER 11615 STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER
EXPIRES 3-3-04

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

VILLAGE AT WEBSTER'S POND
DETAILED GRADING PLAN

SNOHOMISH COUNTY WASHINGTON

"AS-BUILT"
WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS
BY: _____ PROJECT ENGINEER/SURVEYOR DATE
BY: _____ PROJECT DEVELOPER DATE

PFN#: 98-108094

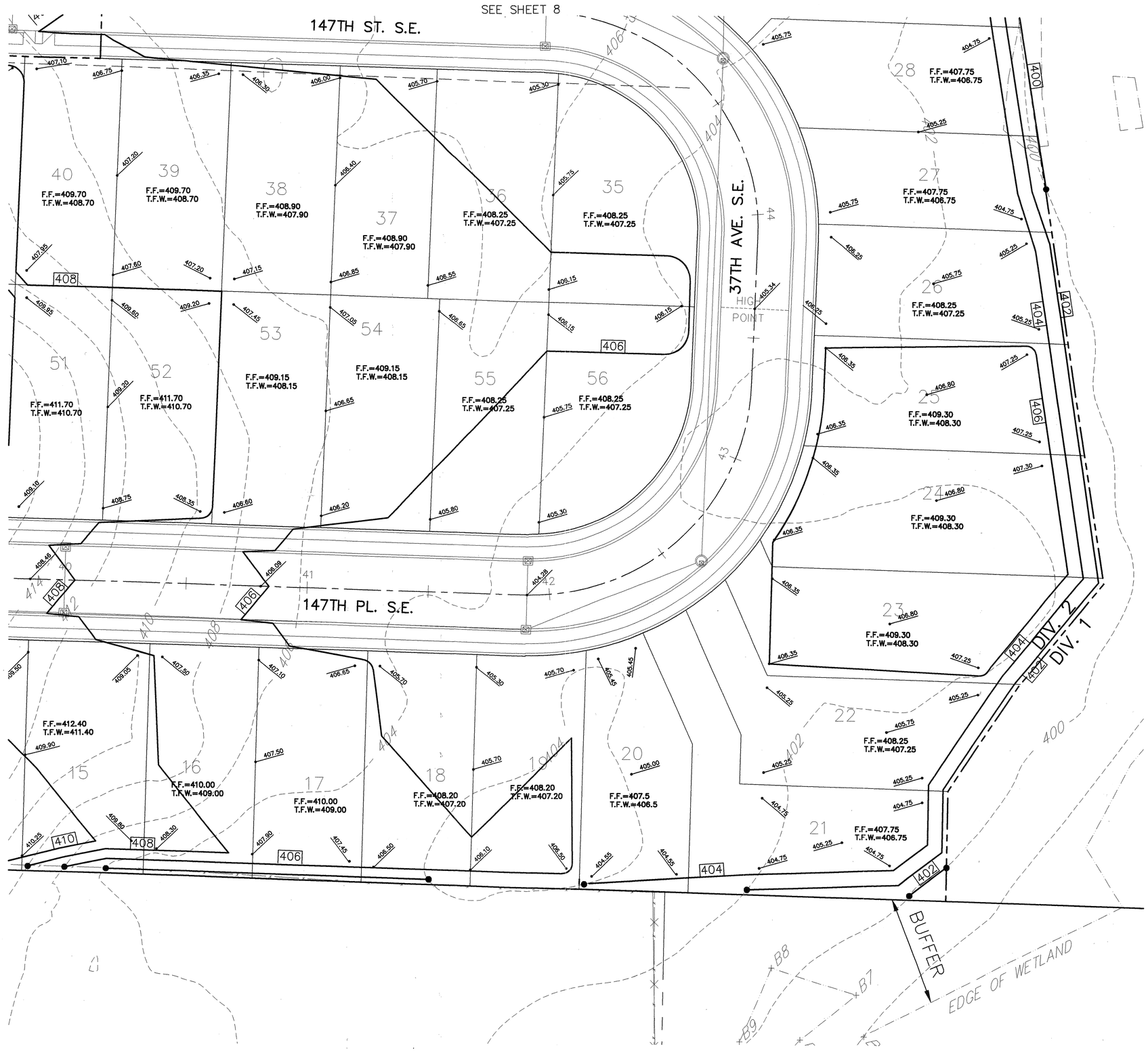
SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____ 10/17/02
R/W PERMIT NO. 01101941

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

SHT 8 OF 26
JOB NO: 99-8040

#DEV-2380

SW1/4, SW1/4, SEC. 33, TWP. 28, RGE. 5, W.M.



N

SCALE:1"=20'

CONTOUR INTERVAL= 2'

20 0 20 40

LEGEND

T.F.W.	=	TOP OF FOUNDATION WALL
F.F.	=	FINISHED FLOOR
405.0	=	CONSTRUCTION GRADE ELEVATION (TOP OF TOPSOIL ELEVATION)
414.53	=	PROPOSED FUTURE ELEVATION – 35TH AVE. S.E. (PER SNOHOMISH COUNTY DEPT. PUBLIC WORKS PROJECT NO. RC 1069 AS TAKEN FROM ENTRANCO 90% REVIEW SUBMITTAL PLANS.)

NOTES:

1. STRUCTURAL PAD GRADE IS APPROXIMATELY 1.5' BELOW THE T.F.W. ELEVATION.
2. FINISHED GRADE (BY BUILDER) IN THE AREA OF THE PROPOSED BUILDINGS IS EXPECTED TO BE ROUGHLY 6" BELOW THE T.F.W. ELEVATION.

NO.	REVISION	DATE	BY

FILENAME: P:\PROJECTS\98-8040\Dwg\Sht9.dgn 05/10/01 09:37:49 PeterJ
PLOTTED: 05/10/01 09:37:49 PeterJ
XREF/LAYOUT: EGRADING/DETAILED GRADING SHT 9

C. VANIER 20012 WASHINGTON STATE REGISTERED PROFESSIONAL ENGINEER
EXPIRES 3-5-01

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 * (206)362-4244 * FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

VILLAGE AT WEBSTER'S POND
DETAILED GRADING PLAN

SNOHOMISH COUNTY WASHINGTON

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BY: _____ PROJECT DEVELOPER DATE

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____ 10/11/01
R/W PERMIT NO. 01107947

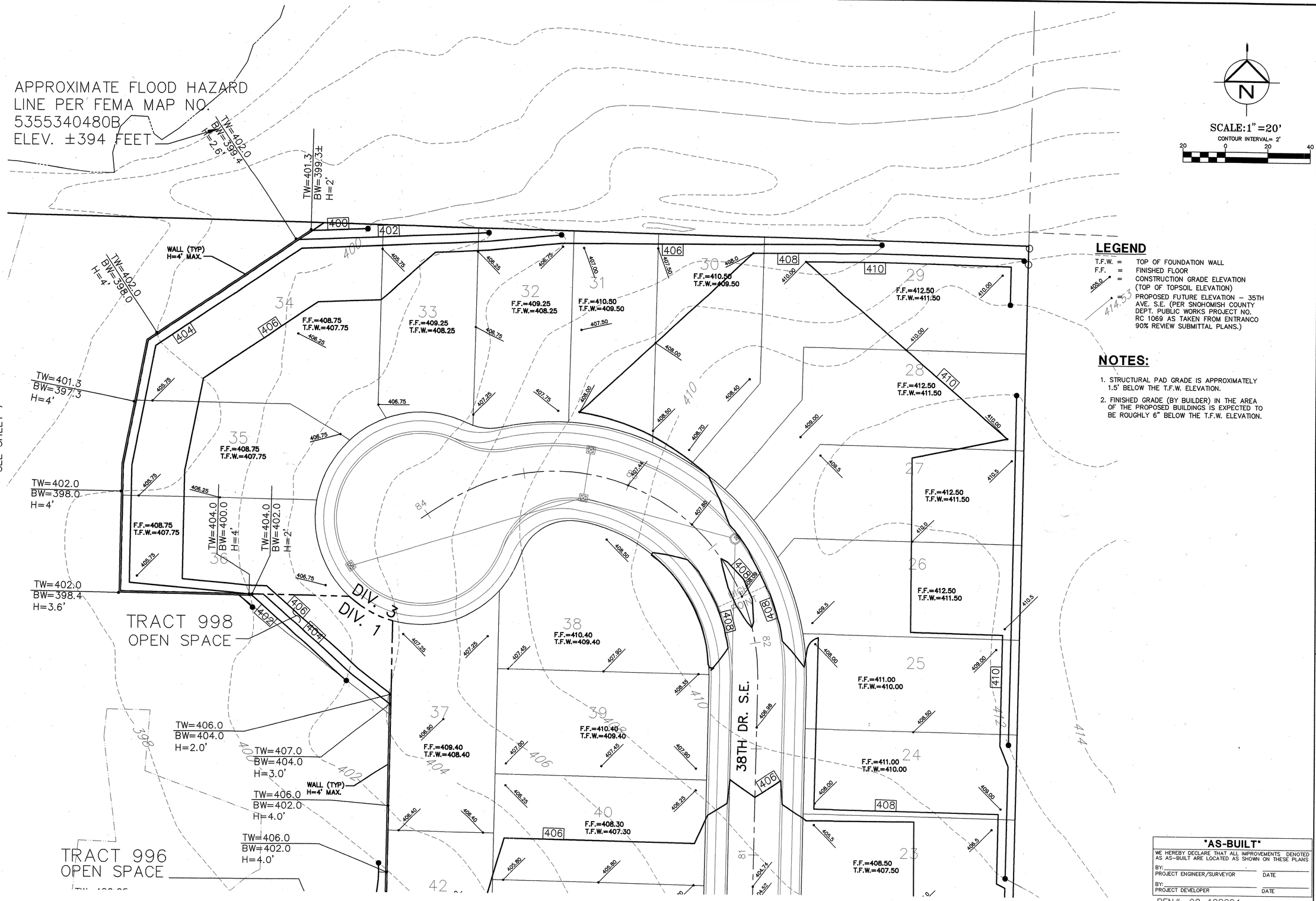
CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

SHT 9 OF 26

JOB NO:99-8040

HDEV-2361

SW1/4, SW1/4,SEC. 08 ,TWP. 28 ,RGE. 5 ,W.M.



SCALE:1"=20'
CONTOUR INTERVAL= 2'
20 0 20 40

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SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____ 10/17/00
R/W PERMIT NO. 01107947

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

NO. | REVISION | DATE | BY

FILENAME: J:\99-8040\WP\PSCOMB1NC-V7
UPDATED: NOV 06 2001 07:53:31

O. VANLIER 2-001 EXPIRES 9/11/03 REGISTERED PROFESSIONAL ENGINEER STATE OF WASHINGTON

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(306)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
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VILLAGE AT WEBSTER'S POND
DETAILED GRADING PLAN

SNOHOMISH COUNTY WASHINGTON

SHT 10 OF 26
JOB NO:99-8040

HDEV-2382

SEE SHEET 10

TRACT 996
OPEN SPACE

TW=406.25
BW=397.0±
H=9.25'

TW=406.0
BW=402.0
H=4.0'

TW=406.0
BW=403.0
H=3.0'

WALL (TYP)
H=4' MAX.

TW=406.00
BW=404.0
H=2.0'

TW=406.00
BW=400.0±
H=6'

TW=405.75
BW=397.8±
H=7.95'

TW=406.0
BW=404.0
H=2'

H=10.90'

TW=406.80
BW=395.3±
H=11.50'

TW=406.70
BW=396.1±
H=10.6'

TW=406.50
BW=396.5±
H=10.0'

DIV. 1
DIV. 3

TW=406.00
BW=397.4±
H=8.6'

TW=406.0
BW=402.0
H=4'

HIGH POINT

146TH ST. S.E.

WALL (DESIGN BY OTHERS)
HEIGHT VARIES-
SEE SHT. 3

DIV. 3
DIV. 1

38TH DR. S.E.

F.F.=408.90
T.F.W.=407.50

F.F.=408.30
T.F.W.=407.30

F.F.=408.50
T.F.W.=407.50

F.F.=408.50
T.F.W.=407.50

F.F.=408.25
T.F.W.=407.25

F.F.=408.25
T.F.W.=407.25

F.F.=408.25
T.F.W.=407.25

F.F.=408.80
T.F.W.=407.80

F.F.=407.25
T.F.W.=406.25

F.F.=408.80
T.F.W.=407.80

F.F.=409.70
T.F.W.=408.70

F.F.=409.70
T.F.W.=408.70

F.F.=409.60
T.F.W.=408.60

F.F.=409.60
T.F.W.=408.60

F.F.=411.05
T.F.W.=410.05

F.F.=411.05
T.F.W.=410.05

GRADE TO DRAIN (TYP.)

SEE SHEET 8

TW=406.80
BW=395.4±
H=11.40'

TW=406.70
BW=397.0±
H=9.7'

TW=406.50
BW=397.4
H=9.10'

TW=406.00
BW=398.0±
H=8.00'

TW=405.75
BW=398.6±
H=7.15'

TW=406.25
BW=397.4±
H=8.85'

TW=405.3
BW=400.6
H=4.70'

TW=404.3
BW=402.0
H=2.3'

TW=405.50
BW=399.5±
H=6.00'

WALL (TYP)
H=4' MAX.

TW=404.0
BW=400.0
H=4'

TW=404.0
BW=400.0
H=4'

TW=404.0
BW=402.0
H=2'

DIV. 3
DIV. 1

TRACT 994
N.G.P.A.

SEE SHEET 12

N

SCALE: 1" = 20'
CONTOUR INTERVAL= 2'
20 0 20 40

LEGEND

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BY: _____ DATE
PROJECT ENGINEER/SURVEYOR
BY: _____ DATE
PROJECT DEVELOPER

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____
R/W PERMIT NO. 01107447

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

NO. | REVISION | DATE | BY

FILENAME: J:\99-084\WORKSHEET\GRADING.MXD
UPDATED: NOV 06 2001 07:03:31

2001 C. JANIER CAMPION STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER
EXPIRES 3-3-04

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING | ENGINEERING | PLANNING | MANAGEMENT
DRAWN BY: | CHECKED BY: | APPROVED BY:
DATE: | DATE: | DATE:

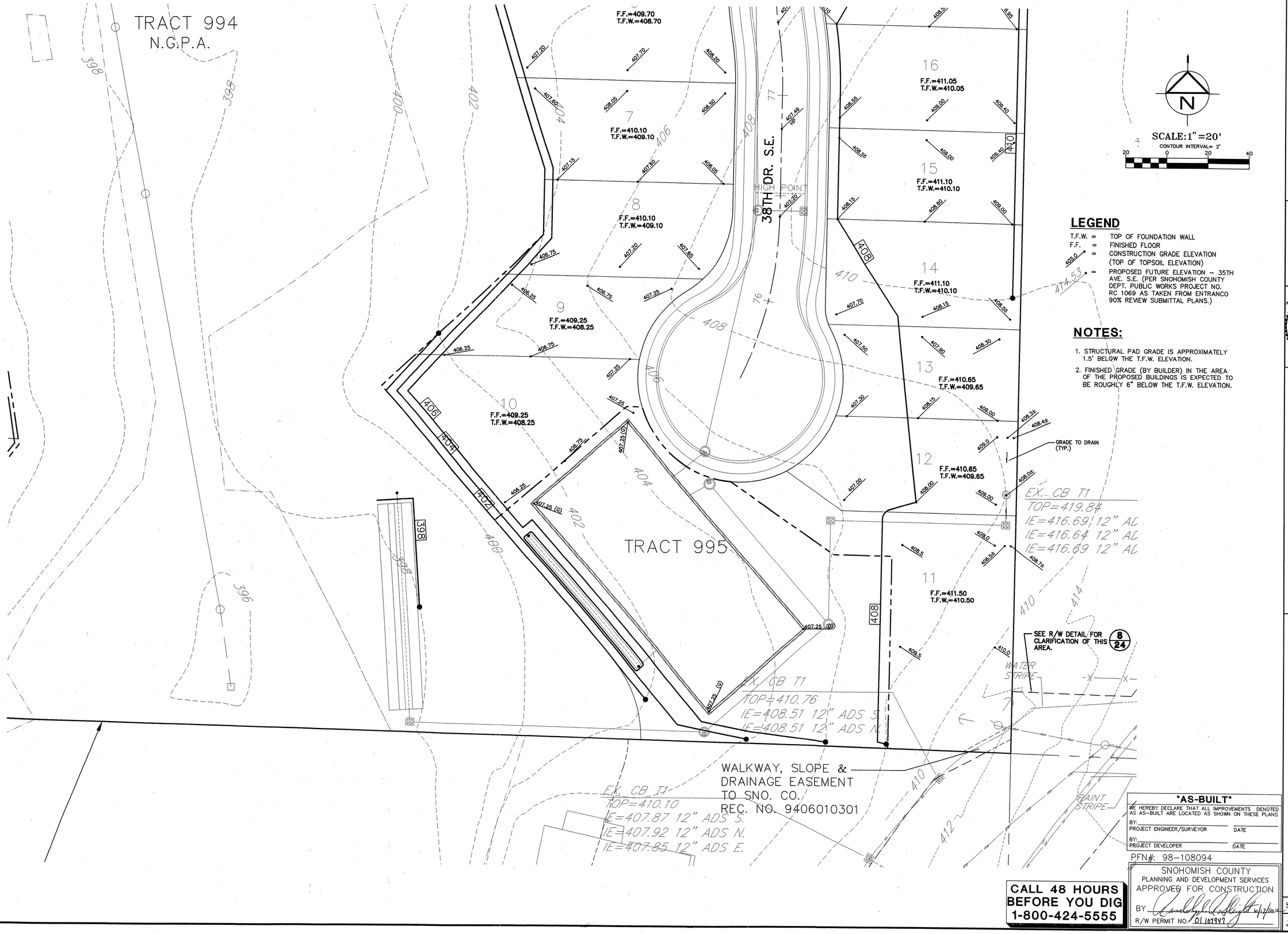
VILLAGE AT WEBSTER'S POND
DETAILED GRADING PLAN

SNOHOMISH COUNTY WASHINGTON

SHT 11 OF 26
JOB NO: 99-8040

HDEV-2383

SW1/4, SW1/4,SEC. 08 ,TWP. 28 ,RGE. 6 ,W.M.



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BY: _____ PROJECT ENGINEER/SURVEYOR DATE
BY: _____ PROJECT DEVELOPER DATE

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____ 6/17/2002
R/W PERMIT NO. 01107447

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

NO. | REVISION | DATE | BY

FILENAME: J:\99-8040\WORK\CDS\8040SHT12.DWG
UPDATED: NOV 06 2001 07:03:31

CARMEN O. VANIER 19001 STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER
EXPIRES 3-5-2004

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

VILLAGE AT WEBSTER'S POND
DETAILED GRADING PLAN

SNOHOMISH COUNTY WASHINGTON

SHT 12 OF 26

JOB NO: 99-8040

HDEV-2384

SITE GRADING AND T.E.S.C. NOTES

1. ALL GRADING SHALL COMPLY TO CHAPTER 33 OF THE UNIFORM BUILDING CODE, TITLE 17, AND TITLE 24 OF THE SNOHOMISH COUNTY CODE (CURRENT EDITIONS).
2. TESC MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE WORK (SEE ATTACHED DETAILED DRAINAGE PLAN).
3. PUBLIC STREETS ARE TO BE KEPT CLEAR OF DIRT AND DEBRIS DURING EXCAVATION AND FILL OPERATIONS.
4. THE TEMPORARY EROSION/SEDIMENTATION CONTROL FACILITY SHALL BE CONSTRUCTED PRIOR TO ANY GRADING OR EXTENSIVE LAND CLEARING IN ACCORDANCE WITH THE APPROVED TEMPORARY EROSION/SEDIMENTATION CONTROL PLAN. THESE FACILITIES MUST BE SATISFACTORILY MAINTAINED UNTIL CONSTRUCTION AND LANDSCAPING IS COMPLETED AND THE POTENTIAL FOR ON-SITE EROSION HAS PASSED.
5. NON-COMPLIANCE WITH THE EROSION CONTROL REQUIREMENTS, WATER QUALITY REQUIREMENTS AND/OR CLEARING LIMITS MAY RESULT IN REVOCATION OF PROJECT PERMITS, PLAN APPROVAL AND BOND FORECLOSURES.
6. CONSTRUCTION ACCEPTANCE WILL BE SUBJECT TO A WELL ESTABLISHED GROUND COVER THAT FULFILLS THE REQUIREMENT OF THE APPROVED CONSTRUCTION PLANS AND TITLE 24, SNOHOMISH COUNTY DRAINAGE ORDINANCE.
7. ALL AREAS TO BE SEEDED SHALL BE CULTIVATED TO THE SATISFACTION OF THE COUNTY INSPECTOR. THIS MAY BE ACCOMPLISHED BY DISCING, RAKING, HARROWING OR OTHER ACCEPTABLE MEANS. PERFORM ALL CULTURAL OPERATIONS ACROSS OR AT RIGHT ANGLES TO THE SLOPE. IF NECESSARY, SURFACE RUNOFF CONTROL MEASURES SUCH AS GRADIENT TERRACES, INTERCEPTOR DIKE/SWALES, LEVEL SPREADERS, AND SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO SEEDING.
8. ALL DISTURBED AREAS SUCH AS RETENTION FACILITIES, ROADWAY BACK-SLOPES, ETC. SHALL BE SEEDED WITH A PERENNIAL GROUND COVER GRASS TO MINIMIZE EROSION. GRASS SEEDING WILL BE DONE USING AN APPROVED HYDROSEEDER OR AS OTHERWISE APPROVED BY SNOHOMISH COUNTY.
9. IMMEDIATELY FOLLOWING FINISH GRADING, PERMANENT VEGETATION (CONSISTING OF RAPID, PERSISTENT AND LEGUME) WILL BE APPLIED (MINIMUM 120# PER ACRE). THIS IS TO INCLUDE THE FOLLOWING: 20% ANNUAL, PERENNIAL OR HYBRID RYE GRASS, 40% CREEPING RED FESCUE, 40% WHITE CLOVER. HYDROSEED REQUIRED.
10. FERTILIZER SHALL BE APPLIED AT 400# PER ACRE OF 10-20-20 (10 POUNDS PER 1100 SQUARE FEET) OR EQUIVALENT. DEVELOPMENTS ADJACENT TO WATER BODIES SHALL USE NON-PHOSPHOROUS FERTILIZER.
11. THESE PLANS INDICATE CUT AND FILL SLOPES WHICH EXCEED A MAXIMUM OF TWO FEET HORIZONTAL TO ONE FOOT VERTICAL (2:1), A ROCK OR CONCRETE RETAINING WALL MAY BE REQUIRED. ALL ROCK RETAINING WALLS GREATER THAN FOUR (4) FEET IN HEIGHT ARE TO FOLLOW COUNTY SPECIFICATIONS AND TO BE DESIGNED AND CERTIFIED BY A CIVIL ENGINEER EXPERIENCED IN SOILS MECHANICS. ALL OTHER CUT AND FILL SLOPES SHALL BE A MAXIMUM OF 2:1.
12. STOCKPILES ARE TO BE LOCATED IN SAFE AREAS AND ADEQUATELY PROTECTED TO PREVENT EROSION. HYDROSEED PREFERRED.
13. THE NATIVE GROWTH PROTECTION AREA IS TO BE LEFT PERMANENTLY UNDISTURBED IN A SUBSTATIALLY NATURAL STATE. NO CLEARING, GRADING, FILLING, BUILDING CONSTRUCTION OR PLACEMENT, OR ROAD CONSTRUCTION OF ANY KIND SHALL OCCUR, EXCEPT REMOVAL OF HAZARDOUS TREES. THE ACTIVITIES AS SET FORTH IN SCC 32.10.110(29)(a), (c), AND (d) ARE ALLOWED WHEN APPROVED BY THE COUNTY.
14. PRIOR TO INITIATION OF SITE WORK, HIGHLY VISIBLE MARKERS SUCH AS ORANGE BARRIER FENCING OF FLAGGING SHALL BE USED TO IDENTIFY N.G.P.A. BOUNDARIES. PRIOR TO RECORDING, ALL N.G.P.A.'s SHALL BE CLEARLY AND PERMANENTLY MARKED ON THE PROJECT SITE. SIGNS SHALL BE PLACED NO GREATER THAN 100 FEET APART AROUND THE PERIMETER OF THE N.G.P.A. THE DESIGN FOR THE N.G.P.A. SIGN SHALL BE SUBMITTED TO WATER RESOURCES FOR REVIEW AND APPROVAL NO CLEARING OF ANY VEGETATION OR GRADING IS TO BE ALLOWED WITHIN THE N.G.P.A. AREAS.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

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 8" QUARRY SPALLS.
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 50 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 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.

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 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 DEPOSITION 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.

GENERAL NOTES

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH SNOHOMISH COUNTY ENGINEERING DESIGN AND DEVELOPMENT STANDARDS (E.D.D.S.), WASHINGTON STATE DEPARTMENT OF TRANSPORTATION/AMERICAN PUBLIC WORKS ASSOCIATION 2001 STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, AND THE 1997 WSDOT HYDRAULICS MANUAL.
2. ALL WORK PERTAINING TO THIS PROJECT SHALL BE SUBJECT TO INSPECTION BY THE COUNTY ENGINEER OR HIS DESIGNATED REPRESENTATIVE. PRIOR TO ANY SITE WORK, THE CONTRACTOR SHALL CONTACT THE COUNTY INSPECTOR AT (206) 388-3385 TO SCHEDULE A PRECONSTRUCTION CONFERENCE.
3. PRIOR TO ANY SITE DISTURBING ACTIVITY INCLUDING CLEARING, LOGGING OR GRADING, THE SITE CLEARING LIMITS AS SHOWN ON THESE PLANS SHALL BE LOCATED AND FIELD IDENTIFIED BY THE PROJECT SURVEYOR OR ENGINEER. THE PROJECT SURVEYOR OR ENGINEER'S NAME AND TELEPHONE NUMBER ARE GROUP FOUR, INC., (425) 775-4581.
4. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING WATER QUALITY OF THE STORMWATER RUNOFF LEAVING THE SITE DURING CONSTRUCTION PER THE STANDARDS ESTABLISHED BY THE TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN AND THE STORM WATER POLLUTION PREVENTION PLAN. THE OWNER MAY BE SUBJECT TO FINES IF THE SITE RUNOFF FAILS TO MEET THE STANDARDS. THE OWNER IS RESPONSIBLE FOR THE REQUIRED MONITORING PROGRAM. THE PERSON RESPONSIBLE FOR THE MONITORING PROGRAM IS TERRA ASSOCIATES, INC. (425-821-7777). THE OWNER AND CONTRACTOR SHALL CONFIRM THE REQUIRED MONITORING AND REPORTING PROCEDURES AND THE INDIVIDUAL RESPONSIBLE TO BE ON CALL AT ALL TIMES TO RESPOND TO EROSION CONTROL EMERGENCIES IS BOB LAUSER, PHONE NUMBER 206-849-3836.
5. ANY REVISION TO THESE PLANS REQUIRES APPROVAL BY SNOHOMISH COUNTY PRIOR TO CONSTRUCTION. THE REVISION SHALL BE STAMPED AND SIGNED BY THE PROJECT ENGINEER.

CONSTRUCTION SEQUENCE

1. ATTEND PRE-CONSTRUCTION MEETING.
2. BEFORE PERFORMING ANY GRADING OR CLEARING, THE APPLICANT SHALL MARK, IN THE FIELD, THE LIMITS OF ALL PROPOSED CLEARING AND GRADING, CRITICAL AREAS AND THEIR BUFFERS, TREES TO BE RETAINED, AND DRAINAGE COURSES.
3. INSTALL FILTER FENCE AND TEMPORARY N.G.P.A. FENCE.
4. INSTALL THE TEMPORARY CONSTRUCTION ENTRANCE.
5. CLEAR FOR THE PROPOSED SEDIMENT POND. CLEAR AND GRUB SITE TO LIMITS OF CLEARING AS SHOWN ON THE CLEARING, GRADING, AND T.E.S.C. PLANS. CONSTRUCT SEDIMENT PONDS SIMULTANEOUSLY WITH CLEARING AND GRADING.
6. CONSTRUCT SURFACE WATER CONTROLS (TEMPORARY SWALES, TEMPORARY PIPES, CUTOFF SWALES, CHECK DAMS, ETC.) SIMULTANEOUSLY WITH CLEARING AND GRADING.
7. FROM OCTOBER 1 TO APRIL 30, NO SOIL MAY REMAIN EXPOSED FOR MORE THAN 2 DAYS. FROM MAY 1 TO SEPTEMBER 30, NO SOIL MAY REMAIN EXPOSED FOR MORE THAN 7 DAYS. MATERIALS, EQUIPMENT, AND OTHER RESOURCES SHALL BE ON SITE AT ALL TIMES TO IMMEDIATELY STABILIZE ALL SOIL. SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITHIN 24 HOURS OF FORMATION TO PREVENT SOIL LOSS. CLEARING AND GRADING SHALL BE TIMED AND CONDUCTED IN STAGES TO MINIMIZE SOIL EXPOSURE.
8. RELOCATE/REVISE EROSION CONTROL MEASURES OR INSTALL NEW MEASURES AS REQUIRED SO THAT AS SITE CONDITIONS CHANGE, THE EROSION AND SEDIMENTATION CONTROL IS ALWAYS IN ACCORDANCE WITH SNOHOMISH COUNTY MINIMUM STANDARDS.
9. ALL T.E.S.C. MEASURES SHALL BE MAINTAINED AND REPAIRED AS NECESSARY DURING CONSTRUCTION TO ASSURE THEIR CONTINUED PERFORMANCE.
10. INSTALL UTILITIES (STORM, SANITARY SEWER, WATER, POWER, ETC.). BETWEEN OCTOBER 1 AND MARCH 31, NO MORE THAN 500 FEET OF CONTINUOUS TRENCH MAY REMAIN OPEN AT ONE TIME UNLESS CHECK DAMS ARE INSTALLED TO REDUCE FLOW VELOCITIES AND PREVENT EROSION. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES, UNLESS INCONSISTENT WITH SAFETY OR SITE CONSTRAINTS.
11. FINAL GRADE/PAVE. MAINTAIN MINIMAL CB PROTECTION PER DETAIL 5, SHEET 14.
12. FLUSH STORM DRAINAGE SYSTEM (I.E. CLEAN OUT AND TEST SYSTEM).
13. ALL T.E.S.C. MEASURES MAY BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR WHEN THEY ARE NO LONGER NECESSARY. BEFORE CONSTRUCTION ACCEPTANCE BY SNOHOMISH COUNTY, PERMANENT VEGETATIVE GROUND COVER SHALL BE ESTABLISHED.

TEMPORARY SEEDING NOTES

DESIGN CRITERIA

-- TIME OF PLANTING - PLANTING SHOULD PREFERABLY BE DONE BETWEEN APRIL 1 AND JUNE 30, AND SEPTEMBER 1 THROUGH OCTOBER 31. IF PLANTING IS DONE IN THE MONTHS OF JULY AND AUGUST, IRRIGATION MAY BE REQUIRED. IF PLANTING IS DONE BETWEEN NOVEMBER 1 AND MARCH 31, MULCHING SHALL BE REQUIRED IMMEDIATELY AFTER PLANTING. IF SEEDING IS DONE DURING THE SUMMER MONTHS, IRRIGATION OF SOME SORT WILL PROBABLY BE NECESSARY.

-- SITE PREPARATION - BEFORE SEEDING, INSTALL NEEDED SURFACE RUNOFF CONTROL MEASURES SUCH AS GRADIENT TERRACES, INTERCEPTOR DIKE/SWALES, LEVEL SPREADERS, AND SEDIMENT BASINS.

-- SEEDBED PREPARATION - THE SEEDBED SHOULD BE FIRM WITH A FAIRLY FINE SURFACE. PERFORM ALL CULTURAL OPERATIONS ACROSS OR AT RIGHT ANGLES TO THE SLOPE. SEE BMP E1.45, TOPSOILING, AND BMP E2.35, SURFACE ROUGHENING FOR MORE INFORMATION ON SEEDBED PREPARATION. A MINIMUM OF 2-4 INCHES OF TILLED TOPSOIL IS REQUIRED.

-- FERTILIZATION - AS PER SUPPLIERS AND/OR SOIL CONSERVATION SERVICE RECOMMENDATIONS. DEVELOPMENTS ADJACENT TO WATER BODIES MUST USE NON-PHOSPHORUS FERTILIZER.

-- SEEDING - SEEDING MIXTURES WILL VARY DEPENDING ON THE EXACT LOCATION, SOIL TYPE, SLOPE, ETC. INFORMATION ON MIXES MAY BE OBTAINED FROM LOCAL SUPPLIERS, THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION, OR THE SOIL CONSERVATION SERVICES. HOWEVER, APPROVAL TO USE ANY PARTICULAR MIX MUST BE OBTAINED FROM THE LOCAL GOVERNMENT. THE FOLLOWING SEED MIX IS SUPPLIED AS GUIDANCE.

NAME	PROPORTIONS BY WEIGHT	PERCENT PURITY	PERCENT GERMINATION
REDTOP (AGROSTIS ALBA)	10%	92	90
ANNUAL RYE (LOLIUM MULTIFLORUM)	40%	98	90
CHEWING FESCUE (FESRUCA RUDRA COMMUTATA)	40%	97	80
WHITE DUTCH CLOVER (TRIFOLIUM REPENS)	10%	96	90

"HYDRO-SEEDING" APPLICATIONS WITH APPROVED SEES-MULCH- FERTILIZER MIXTURES MAY ALSO BE USED.

MAINTENANCE

-- SEEDING SHOULD BE SUPPLIED WITH ADEQUATE MOISTURE. SUPPLY WATER IS NEEDED, ESPECIALLY IN ABNORMALLY HOT OR DRY WEATHER OR ON ADVERSE SITE. WATER APPLICATION RATES SHOULD BE CONTROLLED TO PREVENT RUNOFF.

-- RE-SEEDING - AREAS WHICH FAILS TO ESTABLISH VEGETATIVE COVER ADEQUATE TO PREVENT EROSION SHALL BE RE-SEEDED AS SOON AS SUCH AREAS ARE IDENTIFIED.

-- ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHOULD BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY BMPS ARE NO LONGER NEEDED. TRAPPED SEDIMENT MUST BE REMOVED OR STABILIZED ON SITE. DISTURBED SOIL AREA RESULTING FROM REMOVAL SHOULD BE PERMANENTLY STABILIZED

PERMANENT SEEDING NOTES

DESIGN CRITERIA

-- VEGETATION CANNOT BE EXPECTED TO SUPPLY AN EROSION CONTROL COVER AND PREVENT SLIPPAGE ON A SOIL THAT IS NOT STABLE DUE TO IT'S TEXTURE, STRUCTURE, WATER MOVEMENT, OR EXCESSIVE SLOPE.

-- SEEDING SHOULD BE DONE IMMEDIATELY AFTER FINAL SHAPING, EXCEPT DURING THE PERIOD OF NOVEMBER 1 THROUGH MARCH 1, WHEN THE SITE SHOULD BE PROTECTED BY MULCHING OR PLASTIC COVERING UNTIL THE NEXT SEEDING PERIOD.

-- PERMANENT VEGETATION MAY BE IN THE FORM OF GRASS-TYPE GROWTH BY SEEDING OR SODDING, OR IT MAY BE TREES OR SHRUBS, OR A COMBINATION OF THESE. ESTABLISHING THIS COVER MAY REQUIRE THE USE OF SUPPLEMENTAL MATERIALS, SUCH AS MULCH OR JUTE NETTING (SEE BMP E1.15).

-- SITE PREPARATION: INSTALL NEEDED SURFACE RUNOFF CONTROL MEASURES SUCH AS GRADIENT TERRACES, BERMS, DIKES, LEVEL SPREADER, WATERWAYS, AND SEDIMENT BASINS PRIOR TO SEEDING OR PLANTING.

-- SEEDING GRASSES AND LEGUMES: SEEDBED PREPARATION-IF INFERTILE OR COARSE TEXTURE SUBSOIL WILL BE EXPOSED DURING LAND SHAPING, IT IS BEST TO STOCKPILE TOPSOIL AND RESPREAD IT OVER THE FINISHED SLOPE AT A MINIMUM 2 TO 6 INCH DEPTH AND ROLL IT TO PROVIDE A FIRM SEEDBED IF CONSTRUCTION FILLS HAVE LEFT SOIL EXPOSED WITH A LOOSE, ROUGH, OR IRREGULAR SURFACE, SMOOTH WITH BLADE AND ROLL. IF CUTS OR CONSTRUCTION EQUIPMENT HAVE LEFT A TIGHTLY COMPACTED SURFACE, BREAK WITH CHISEL PLOW OR OTHER SUITABLE IMPLEMENT. PERFORM ALL CULTURAL OPERATION ACROSS OR AT RIGHT ANGLES TO THE SLOPE (CONTOURED), SUCH AS WITH CAT TRACKS ON THE FINAL PASS. THE SEEDBED SHOULD BE FIRM WITH A FAIRLY FINE SURFACE.

-- SOIL AMENDMENTS: RATES WILL DEPEND ON SITE CHARACTERISTICS AND SOIL, BUT AS A GUIDE, APPLY LIME AT THE RATE OF 100 POUNDS PER 1,000 SQUARE FEET. APPLY ACTUAL NITROGEN AT THE RATE OF 1-2 POUNDS PER 1,000 SQ. FEET, PHOSPHORIC ACID AT THE RATE OF 1.5 POUNDS PER 1,000 SQ. FEET, AND POTASSIUM AT THE RATE OF 1.5 PONDS PER 1,000 SQ. FEET. WORK IN LIME AND OTHER NUTRIENTS TO A DEPTH OF A MINIMUM OF 4 INCHES WITH SUITABLE EQUIPMENT. SCATTER AMENDMENTS UNIFORMLY AND WORK INTO THE SOIL DURING SEEDBED PREPARATION.

-- SEEDING: APPLY AN APPROPRIATE MIXTURE TO THE PREPARED SEEDBED AT A RATE OF 120 LBS/ACRE. (SEED MIXTURE MAY BE VARIED BY THE LOCAL GOVERNMENT TO TAKE ACCOUNT OF LOCAL CONDITIONS).

URBAN APPLICATION:

NAME	PROPORTIONS BY WEIGHT	PERCENT PURITY	PERCENT GERMINATION
KENTUCKY BLUEGRASS	30%	85	80
CREEPING RED FESCUE	40%	98	90
PERENNIAL RYE	30%	95	90

RURAL APPLICATION:

NAME	PROPORTIONS BY WEIGHT	PERCENT PURITY	PERCENT GERMINATION
KENTUCKY BLUEGRASS (POA PRATENSIS)	15%	85	80
TALL FESUE (FESTUCA ARUNDINCEA)	40%	95	90
PERENNIAL RYE (LOLIUM PERENNE)	30%	95	90
CHEWING FESCUE	15%	95	90

COVER THE SEED WITH TOPSOIL OR MULCH NO DEEPER THAN 1/2 INCH. IT IS BETTER TO WORK TOPSOILL INTO THE UPPER SOIL LAYER RATHER THAN SPREAD A LAYER OF IT DIRECTLY ONTO THE TOP OF THE NATIVE SOIL.

"HYDRO-SEEDING" APPLICATION WITH APPROVED SEED-MULCH- FERTILIZER MIXTURE MAY ALSO BE USED.

WETLAND SEED MIXTURES: FOR NEWLY CREATED WETLANDS, A WETLANDS SPCIALIST SHOULD DESIGN PLANTINGS TO PROVIDE THE BEST CHANCE OF SUCCESS. AS A GUIDE APPLY THE FOLLOWING MIXTURE AT A RATE OF 60 LBS/ACRE, AND/OR ADDITIONAL TUBERS FOR CATTAIL, BULRUSH, SLOUGH SEDGE, AS REQUIRED BY THE LOCAL GOVERNMENT. SEE CHAPTER III-4, VOLUME III FOR MORE INFORMATION ON CONSTRUCTED WETLANDS.

DO NOT UNDER ANY CIRCUMSTANCES USE INTRODUCED, INVASION PLANTS LIKE READ CANARYGRASS (PHALARIS ARUNDINACES) OR PURPLE LOOSESTRIFE (LYTHRUM SALICARIA). USING PLANTS SUCH AS THESE WILL CAUSE MANY MORE PROBLEMS THAN THEY WILL EVER SOLVE.

NAME	PROPORTIONS BY WEIGHT	PERCENT PURITY	PERCENT GERMINATION
RED TOP (AGROSTIS ALBA)	30%	92	80
BIRDSFOOT TREFOIL (LOTUS CORNICULATUS)	30%	90	80
CREEPING RED FESCUE	40%	98	90

TREE AND SHRUB PLANTING

BESIDES THEIR EROSION AND SEDIMENT CONTROL VALUES, TREES AND SHRUBS ALSO PROVIDE NATURAL BEAUTY AND WILDLIFE BENEFITS. WHEN USED FOR THE LATTER, THEY ARE USUALLY MORE EFFECTIVE WHEN PLANTED IN CLUMPS OR BLOCKS. THESE PROCEDURES SHOULD BE FOLLOWED:

1. TREES AND SHRUBS WILL DO BEST IN TOPSOIL. IF NO TOPSOIL IS AVAILABLE, THEY CAN ESTABLISHED IN SUBSOIL WITH PROPER AMENDMENT. IF TREES AND SHRUBS ARE TO BE PLANTED IN SUBSOIL, PARTICULAR ATTENTION SHOULD BE PAID TO AMENDING THE SOIL WITH GENEROUS AMOUNTS OF ORGANIC MATTER. MULCHES SHOULD BE USED.
2. GOOD QUALITY PLANTING STOCK SHOULD BE USED. NORMALLY ON OR TWO-YEAR OLD DECIDUOUS SEEDLINGS AND THREE OR FOUR- YEAR OLD CONIFEROUS TRANSPLANTS, WHEN PROPERLY PRODUCED AND HANDLED ARE ADEQUATE. STOCK SHOULD BE KEPT COOL AND MOIST FROM TIME OF RECEIPT AND PLANTED AS SOON AS POSSIBLE.
3. COMPETING VEGETATION, IF SIGNIFICANT, SHOULD BE PULLED OUT OF THE AREA WHERE THE PLANT OR PLANTS ARE TO BE PLACED.

MAINTENANCE

INSPECT SEEDED AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RESEED IMMEDIATELY. CONDUCT OR FOLLOW-UP SURVEY AFTER ONE YEAR AND REPLACE FAILED PLANTS WHERE NECESSARY.

-- IF VEGETATIVE CONVER IS INADEQUATE TO PREVENT RILL EROSION, OVERSEED AND FERTILIZE IN ACCORDANCE WITH SOIL TEST RESULTS.

-- IF A STAND HAS LESS THAN 40% COVER, REEVALUATE CHOICE OF PLANT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER. RE- ESTABLISH THE STAND FOLLOWING SEEDBED PREPARATION AND SEEDING RECOMMENDATIONS, OMITTING LIME AND FERTILIZER IN THE ABSENCE OF SOIL TEST RESULTS. IF THE SEASON PREVENTS RESOWING, MULCH OR JUTE NETTING IS AN EFFECTIVE TEMPORARY COVER.

STRUCTURAL FILL REQUIREMENTS

PER "PRELIMINARY GEOTECHNICAL REPORT" PREPARED BY TERRA ASSOCIATES INC., ON SEPT. 15, 1998. (PROJECT NO. T-3772-1)

STRUCTURAL FILL SHOULD BE PLACED IN UNIFORM LOOSE LAYERS NOT EXCEEDING 12 INCHES AND SHOULD BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE SOIL'S MAXIMUM DRY DENSITY AS DETERMINED BY ASTM TEST DESIGNATION D-689 (STANDARD PROCTOR). THE MOISTURE CONTENT OF THE SOIL AT THE TIME OF COMPACTION SHOULD BE WITHIN TWO PERCENT OF IT'S OPTIMUM, AS DETERMINED BY THIS SAME STANDARD. IN NON-STRUCTURAL AREAS OR FOR BACKFILL IN UTILITY TRENCHES BELOW A DEPTH OF FOUR FEET, THE DEGREE OF COMPACTION COULD BE REDUCED TO 90 PERCENT.

PRIOR TO USE, TERRA ASSOCIATES INC., SHOULD EXAMINE AND TEST ALL MATERIALS IMPORTED TO THE SITE FOR USE AS STRUCTURAL FILL.

NO.	REVISION	DATE	BY

FILENAME: J:\99-8040\VPSBNDV(V1)
UPDATED: WED 06 2001 07:02:44

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 * (206)362-4244 * FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

VILLAGE AT WEBSTER'S POND
CLEARING, GRADING & T.E.S.C. NOTES & DETAILS
SNOHOMISH COUNTY WASHINGTON

"AS-BUILT"
WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS
BY:_____ _____
PROJECT ENGINEER/SURVEYOR DATE
BY:_____ _____
PROJECT DEVELOPER DATE

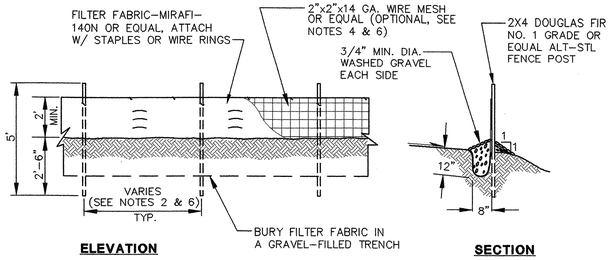
PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____
R/W PERMIT NO. 01107997

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

SHT 13 OF 26
JOB NO: 99-8040

HDEV-2385

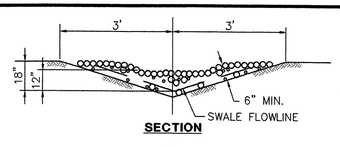


ELEVATION **SECTION**

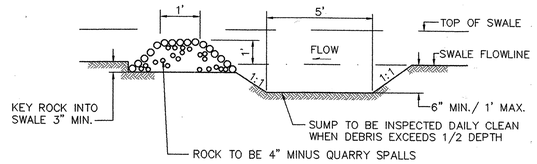
NOTES:

1. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6" OVERLAP, AND BOTH ENDS SECURELY FASTENED TO THE POST.
2. THE FILTER FABRIC FENCE SHALL BE INSTALLED TO FOLLOW THE CONTOURS (WHERE FEASIBLE). THE FENCE POSTS SHALL BE SPACED A MAXIMUM OF 6' APART AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 30").
3. A TRENCH SHALL BE EXCAVATED, ROUGHLY 8" WIDE AND 12" DEEP, UPSLOPE AND ADJACENT TO THE WOOD POST TO ALLOW THE FILTER FABRIC TO BE BURIED.
4. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY–DUTY WIRE STAPLES AT LEAST 1" LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4" AND SHALL NOT EXTEND MORE THAN 30" ABOVE THE ORIGINAL GROUND SURFACE.
5. THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 20" OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 30" ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
6. WHEN EXTRA–STRENGTH FILTER FABRIC AND A 4' POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF STANDARD NOTE 5 APPLYING.
7. THE TRENCH SHALL BE BACKFILLED WITH 3/4" MINIMUM DIAMETER WASHED GRAVEL.
8. FILTER FABRIC SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABLIZED.
9. FILTER FABRIC FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.

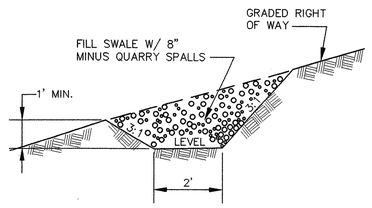
1 FILTER FENCE DETAIL
NO SCALE



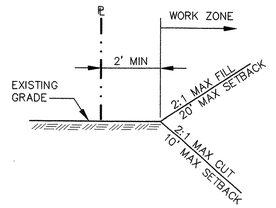
SECTION



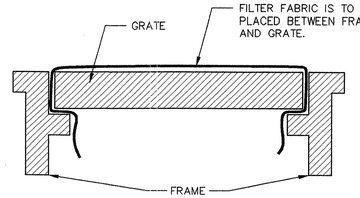
2 TYPICAL CHECK DAM DETAIL
NO SCALE



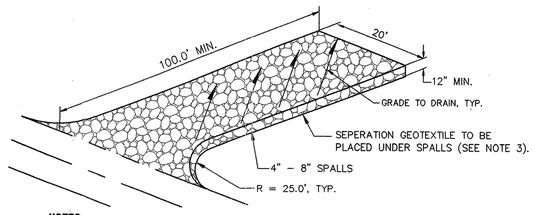
3 CUTOFF SWALE SECTION
NO SCALE



4 TYPICAL SETBACK DETAIL
NO SCALE



5 CB PROTECTION
NO SCALE

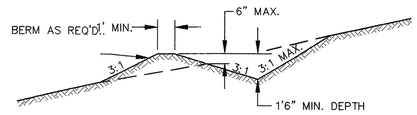


NOTES:

1. CONSTRUCTION ENTRANCE SHALL BE USED FOR TIRE CLEANING/WASHDOWN ONLY. GENERAL CLEANING/WASHDOWN (CONCRETE BOOMS, ETC.) SHALL OCCUR AT APPROPRIATE OFF–SITE LOCATIONS.
2. HAZARDOUS CONDITIONS MAY EXIST NEAR THE CONSTRUCTION ENTRANCE LOCATION (OVERHEAD POWER, ETC.). THEREFORE, IT SHALL BE THE FULL RESPONSIBILITY OF THE CONSTRUCTION ENTRANCE USERS TO EMPLOY SAFETY PRECAUTIONS AS DEEMED NECESSARY.
3. GEOTEXTILE SHALL MEET THE FOLLOWING STANDARDS:

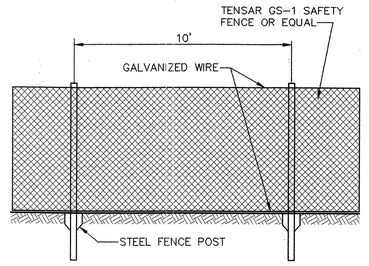
GRABTENSILE STRENGTH (ASTM D4751)	200 PSI MIN.
GRABTENSILE ELONGATION (ASTM D4632)	30% MAX.
MULLEN BURST STRENGTH (ASTM D3786–80a)	400 PSI MIN.
AOS (ASTM D4751)	20–45 (U.S. STANDARD SIEVE SIZE)

6 CONSTRUCTION ENTRANCE
NO SCALE



SLOPE – 0.5% MIN.
– 10.0% MAX.

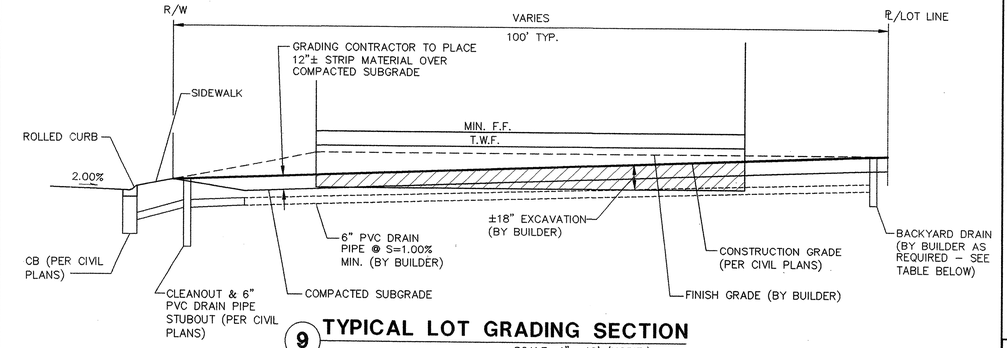
7 TEMPORARY SWALE SECTION
NO SCALE



NOTES:

1. CLIP FENCE TO GALVANIZED WIRE.
2. WIRE FENCE TO STEEL FENCE POST.

8 TEMPORARY N.G.P.A. FENCE DETAIL
NO SCALE



9 TYPICAL LOT GRADING SECTION
SCALE: 1"= 10' (HORIZ.)
1"= 5' (VERT.)

BACKYARD DRAIN SCHEDULE

LOTS	BACKYARD DRAIN REQUIRED
1–28, DIV. 1	NO
24–49, DIV. 1	YES
50–51, DIV. 1	NO
1–19, DIV. 2	NO
20–31, DIV. 2	YES
32–56, DIV. 2	NO
1–10, DIV. 3	YES
11–29, DIV. 3	NO
30–42, DIV. 3	YES

CALL 48 HOURS
BEFORE YOU DIG
1-800-424-5555

"AS-BUILT"

WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS–BUILT ARE LOCATED AS SHOWN ON THESE PLANS

BY: _____ DATE
PROJECT ENGINEER/SURVEYOR

BY: _____ DATE
PROJECT DEVELOPER

PFN#: 98–108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____ 10/1/02
R/W PERMIT NO. 01107447

NO. | REVISION | BY | DATE

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LAYOUT: LAYOUT NAME:GRADING NO SHT 14

GARY O. VANIER
STATE OF WASHINGTON
31784
REGISTERED PROFESSIONAL ENGINEER
EXPIRES 3-9-04

GROUP FOUR, Inc.
16030 JUANITA–WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775–4581 • (206)362–4244 • FAX(206)362–3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

VILLAGE AT WEBSTER'S POND
CLEARING, GRADING & T.E.S.C. NOTES & DETAILS
SNOHOMISH COUNTY WASHINGTON

SHT 14 OF 26
JOB NO:99–8040

HDEV-2386

GEOTECHNICAL RECOMMENDATIONS

4.0 DISCUSSION AND RECOMMENDATIONS

4.1 GENERAL

Based on soil conditions observed, we believe that from a geotechnical standpoint the site is feasible for the development of single-family residences and access roadways. With the exception of the organic soils and peat, the soils encountered during our investigation are competent and will be suitable for supporting standard spread footing foundations, slab-on-grade floors, and pavement sections.

Portions of the site are underlain be peat soils occurring in variably-thick layers. The greatest thickness of peat was observed in Test Pit TP-1, which was excavated within the low-lying area at the north-central part of the site. In general, we would expect the peat to be concentrated in this area, with isolated pockets potentially located throughout the site. Based on our limited field investigation, overexcavation of peat to depths approaching five feet could be required during grading at he north-central part of the site. The remaining test pits indicated a relatively shallow depth to competent bearing soil over the central and eastern portions of the site. Once a grading plan is available, we recommend excavating additional test pits at the site to further delineate subsurface and groundwater conditions and provide specific recommendations for site grading.

The on-site glacially-derived soils range from silty medium sand to sandy clay and silt. If used as fill materials, these soils will be extremely difficult to compact to a suitable unyielding state due to their sensitivity to the prevailing moisture conditions. You should be prepared to stabilize the silt and clay soils with cement or lime in order to improve compactibility and strength. Alternatively, you may import pit-run material to the site for use as fill if suitable stabilization of the on-site soils cannot be achieved.

Building foundation excavations with exposed clay and silt subgrades may require protection with a layer of crushed rock or lean mix during construction. In addition, you should plan on amending clay subgrades with cement or subcutting them 12 inches and restoring grade with a granular base for support of pavements.

The glacial till and till-like soils observed in the test pits consist of compact silty sand, clay, and silt. These soils will exhibit a relatively low permeability and correspondingly negligible infiltration potential. Based on these results, we do not expect infiltration of on-site stormwater will be feasible.

4.2 Site Preparation and Grading

To prepare the site for construction, all vegetation, organic surface soils, and other deleterious materials should be stripped and removed from the site. In general, surface stripping depths of about 6 to 18 inches should be expected to remove organic topsoil over most of the western and eastern portions of the site. However, along the central swale area excavation, depths of two to five feet should be planned to remove organic compressible peat layers. Stripped vegetation debris should be removed from the site. Organic topsoil/peat will not be suitable for use as structural fill but may be used for limited depths in non-structural areas.

Once clearing and grubbing operations are complete, cut and fill operations to establish desired building grades can be initiated. Prior to placing fill, we recommend proofrolling all exposed surfaces to determine if any isolated soft and yielding areas are present. Proofrolling should also be performed in cut areas which will provide direct support for new construction.

If excessively yielding areas are observed and they cannot be stabilized in place by compaction, they should be cut to firm bearing and filled to grade with structural fill. If the depth of excavation to remove unstable soils is excessive, use of geotextile fabric, such as Mirafi 500X or equivalent, in conjunction with structural fill can be considered in order to limit the depth of removal. A minimum of 18 inches of clean, granular structural fill over the geotextile fabric should establish a stable bearing surface.

Where clay/silt soils are exposed at the pavement subgrade elevation, they should be subcut 12 inches with grade restored with granular subbase meeting the requirements of wet weather structural fill as outlined below.

The native soils will be difficult to compact as structural fill when too wet or too dry. Accordingly, the ability to use native soils from site excavations as structural fill will depend on their moisture content and the prevailing weather conditions at the time site grading take place.

If grading activities are planned during the wet winter months or if they are initiated during the summer and extend into fall and winter, the owner should be prepared to import wet weather structural fill. For this purpose, we recommend importing a granular soil which meets the following grading requirements:

U.S. SIEVE SIZE	PERCENT PASSING
MAXIMUM AGGREGATE	3 INCHES
NO. 4	75 MAXIMUM
NO. 200	5 MAXIMUM

*Based on the 3/4 inch fraction.

Prior to use, Terra Associates, Inc., should examine and test all materials imported to the site for use as structural fill.

Structural fill should be placed in uniform loose layers not exceeding 12 inches and should be compacted to a minimum of 95 percent of the soil's maximum dry density as determined by ASTM Test Designation D-689 (Standard Proctor). The moisture content of the soil at the time of compaction should be within two percent of its optimum, as determined by this same standard. In non-structural areas or for backfill in utility trenches below a depth of four feet, the degree of compaction could be reduced to 90 percent.

4.3 Excavations

All excavations at the site associated with confined spaces, such as utility trenches and lower building levels, must be completed in accordance with local, state, or federal requirements. Based on current Occupational Safety and Health Administration (OSHA) regulations, site soils would generally be classified as Group B soils. Accordingly, for excavations more than four feet but less than 20 feet in depth, the side slopes should be laid back at a minimum slope inclination of 1:1 (Horizontal: Vertical).

Ground water seepage should be anticipated within excavations. Based on our study, the volume of water and rate of flow into the excavation should be relatively minor, and is not expected to impact the stability of the excavations when completed as described above. Conventional sump pumping procedures along with a system of collection trenches, if necessary, should be capable of maintaining a relatively dry excavation for construction purposes.

The above information is provided solely for the benefit of the owner and other design consultants, and should not be construed to imply that Terra Associates, Inc., assumes responsibility for job site safety. It is understood that job site safety is the sole responsibility of the project contractor.

4.4 Slopes and Embankments

All permanent cut and fill slopes should be graded with a finished inclination of no greater that 2:1. All fill placed for embankment construction should meet the structural fill requirements as described in the Site Preparation and Grading section of this report. Upon completion of grading, the slope face should be thoroughly compacted, trackwalked, and appropriately vegetated or provided with other physical means to guard against erosion. Final grades at the top of the slope must promote surface drainage away from the slope crest. Water must not be allowed to flow in an uncontrolled fashion over the slope face. If it is necessary to direct surface runoff towards the slope, it should be controlled at the top of the slope face. If it is necessary to direct surface runoff towards the slope, it should be controlled at the top of the slope, piped in a closed conduit installed on the slope face, and taken to an appropriate point of discharge beyond the toe.

4.5 Stormwater Ponds

Based on soil conditions encountered at the site, it is our opinion that discharge of development stormwater through the use of stormwater retention ponds will not be feasible. Therefore, stormwater ponds will need to be designed as detention facilities. Construction of the ponds' containment berms should be completed in accordance with recommendations as outlined in the preceding slopes and embankments section of this report. We recommend, however, that the interior slopes of the pond be graded to a finish inclination no steeper than 3:1. If site constraints and pond volume requirements do not allow for grading the interior slopes to this inclination, a 2:1 slope inclination can be used, provided the potential for shallow sloughing of the near-surface soils on the slope is mitigated below the design high-water level. This mitigation can consist of either lining the slopes to prevent saturation of these near-surface soils or stabilizing with revetment construction.

Revetment construction can consist of subcutting the slope face 12 inches, placing a geotextile fabric on the exposed soil, such as Mirafi 140N or equivalent, and then restoring the slope grade with four- to six-inch sized crushed quarry rock. This type of revetment would also mitigate instability of the slope faces which may be caused by groundwater seepage into the ponds.

4.6 Foundations

Spread Footings

The building may be supported on conventional spread foundations bearing on competent native soils or on structural fills placed above competent native soils. Foundation subgrades should be prepared as recommended in the Site Preparation and Grading section. Perimeter foundations exposed to the weather should be at a minimum depth of 1.5 feet below the adjacent final exterior grades. Interior foundations can be constructed at any convenient depth below the floor slab.

We recommend designing foundations for a net allowable bearing capacity of 2,500 pounds per square foot (psf). For short-term loads, such as wind and seismic, a one-third increase in this allowable capacity can be used. With the anticipated loads and this bearing stress applied, total building settlements should be negligible.

For designing foundations to resist lateral loads, a base friction coefficient of .4 can be used. Possive earth pressures acting on the side of the footing can also be considered. We recommend calculating this lateral resistance using an equivalent fluid weight of 350 pounds per cubic foot (pcf). We recommend not including this upper 12 inches of soil in this computation because they can be affected by weather or disturbed by future grading activity. This value assumes the foundation will be constructed neat against competent native soil or backfilled with structural fill as described in the Site Preparation and Grading section of this report. The passive value recommended includes a safety factor of 1.5.

4.7 Slab-on-Grade

Slabs-on-grade may be supported on the subgrade prepared as recommended in the Site Preparation and Grading section of this report. Immediately below the floor slab, we recommend placing a four-inch thick capillary break layer of clean, free-draining sand or gravel that has less than three percent passing the No. 200 sieve. This material will reduce the potential for upward capillary movement of water through the underlying soil and subsequent wetting of the floor slab.

Where moisture by vapor transmission is undesirable, a durable plastic membrane should be placed on the capillary break layer. The membrane should be covered with two inches of clean sand to guard against damage during construction and to aid in curing of the concrete.

4.8 Drainage

Surface

Final exterior grades should promote free and positive drainage away from the site at all times. Water must not be allowed to pond or collect adjacent foundations or within the immediate building area. We recommend providing a gradient of at least three percent for a minimum distance of ten feet from the building perimeter, except in paved locations. In paved locations, a minimum gradient of one percent should be provided unless provisions are included for collection and disposal of surface water adjacent the structure.

Subsurface

We recommend installing perimeter foundation drains. These drains should consist of a four-inch diameter perforated PVC pipe enveloped with one-inch minus drain rock. The drain rock should extend six inches above and to the sides of the pipe and two inches below the pipe invert. The pipe invert should be set equivalent to the bottom of the footing. The drains should be installed with a gradient sufficient to promote positive flow to a controlled point of approved discharge.

4.9 Utilities

Utility pipes should be bedded and backfilled in accordance with American Public Works Association (APWA) or Snohomish County specifications. At minimum, trench back fill should be placed and compacted as structural fill as described in the Site Preparation and Grading section of this report. As noted, soils excavated on-site should be suitable for use as backfill material. However, the contractor should be prepared to moisture condition the soils as required to facilitate proper compaction. If utility construction takes place during the winter, it may be necessary to import suitable wet weather fill for utility trench backfilling.

4.10 Pavements

Pavements should be constructed on subgrades prepared as described in the Site Preparation and Grading section. Regardless of the degree of relative compaction achieved, the subgrade must be firm and relatively unyielding before paving. Proofrolling the subgrade with heavy construction equipment should be completed to verify this condition.

The pavement design section is dependent upon the supporting capability of the subgrade soils and the traffic conditions to which it will be subjected. As we understand, traffic will mainly consist of light passenger and commercial vehicles with only occasional heavy traffic in the form of moving trucks and trash removal vehicles. Based on this information, with a stable subgrade prepared as recommended, we recommend the following pavement sections:

Two inches of asphalt concrete (AC) over four inches of crushed rock base (CRB)

Two inches of AC over three inches of asphalt treated base (ATB)

The paving materials used should conform to the Washington State Department of Transportation (WSDOT) specifications for Class B asphalt concrete, CRB surfacing, and ATB.

Long-term pavement performance will depend on surface drainage. A poorly-drained pavement section will be subject to premature failure as a result of surface water infiltrating into the subgrade soils and reducing their supporting capability. For optimum performance, we recommend surface drainage gradients of at least two percent. Some degree of longitudinal and transverse cracking of the pavement surface should be expected over time. Regular maintenance should be planned to seal cracks when they occur.

NO.	REVISION	DATE	BY

FILENAME: J:\99-8210\VFEB98\93
UPDATED: AUG 12 2001 15:59:39

GEOTECHNICAL ENGINEER
REGISTERED
EXPIRES 10-10-01

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 * (206)362-4244 * FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

VILLAGE AT WEBSTER'S POND
GEOTECHNICAL RECOMMENDATIONS
PRELIMINARY GEOTECHNICAL REPORT DATED 9/15/98
SNOHOMISH COUNTY WASHINGTON

SHT 15 OF 25
JOB NO: 99-8040

"AS-BUILT"
WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS
BY: _____ _____
PROJECT ENGINEER/SURVEYOR DATE
BY: _____ _____
PROJECT DEVELOPER DATE

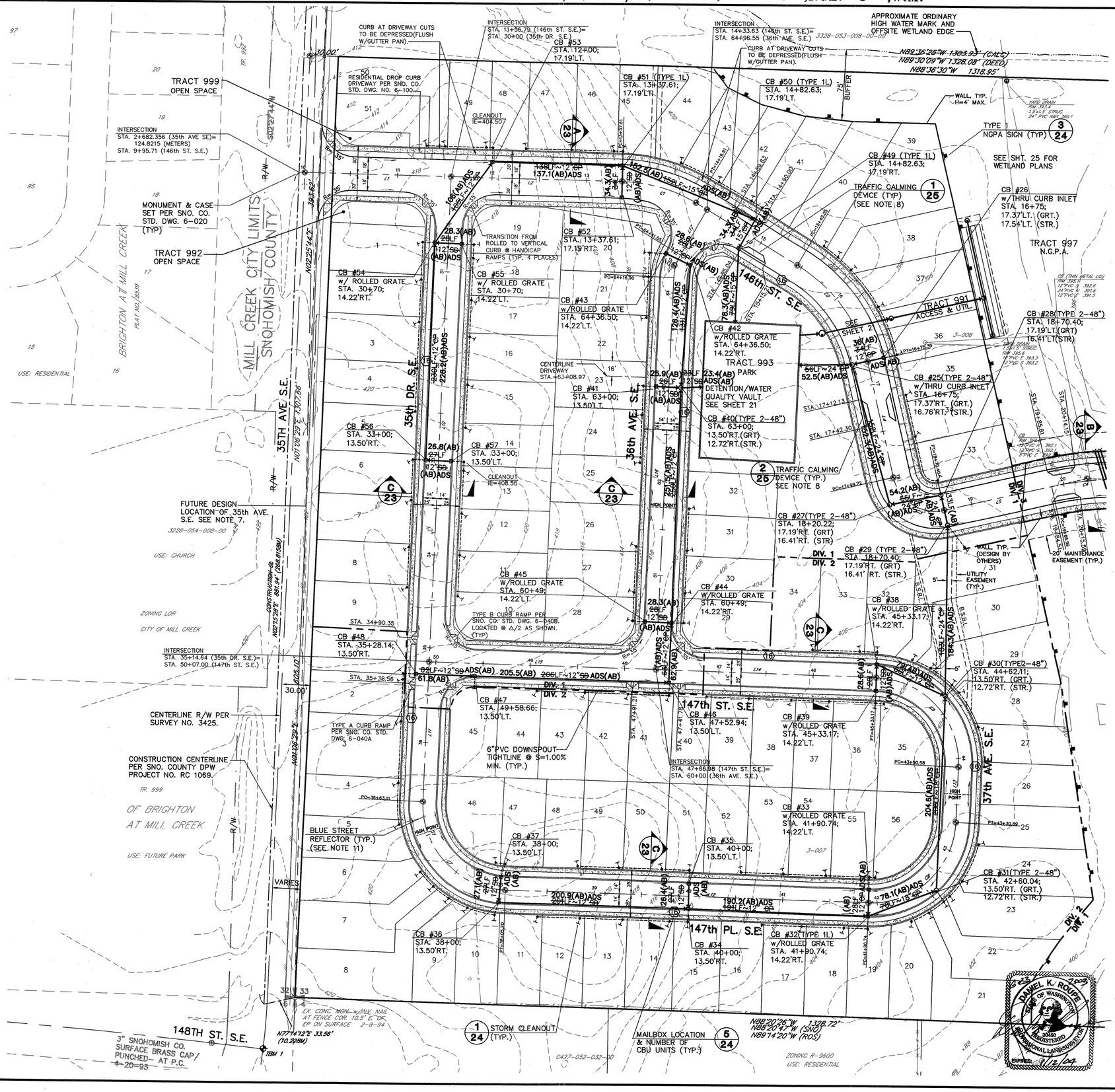
PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____ 10/17/2001
R/W PERMIT NO. 01107447

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

4DA1-2387

SW1/4, SW1/4, SEC. 33, TWP. 28, RGE. 5, W.M.



SCALE: 1"=50'
CONTOUR INTERVAL= 2'
50 0 50 100

CONSTRUCTION CENTERLINE INFORMATION

LINE TABLE		
LINE	BEARING	LENGTH
L1	N88°36'25"W	151.08'
L2	N88°36'25"W	180.82'
L3	N59°19'05"W	125.14'
L4	N13°56'02"W	124.33'
L5	N77°03'58"E	116.58'
L6	N88°36'25"W	96.02'
L7	N79°57'39"E	98.13'
L8	N88°55'45"W	26.28'
L9	N88°55'45"W	123.05'
L10	N02°25'45"E	514.64'
L11	N02°25'45"E	148.48'
L12	N88°20'47"W	385.04'
L13	N02°25'45"E	58.69'
L14	N88°20'47"W	233.80'
L15	N88°20'47"W	240.02'
L16	N02°25'45"E	416.80'
L17	N30°40'55"E	55.00'
L18	N01°04'20"E	182.49'
L19	N01°04'20"E	239.38'
L20	N65°36'10"E	10.95
L21	N01°04'20"E	60.32'

CURVE TABLE				
CURVE	DELTA	RADIUS	LENGTH	TANGENT
C1	23°17'19"	181.00'	82.30'	42.07'
C2	46°23'03"	161.00'	130.34'	68.98'
C3	90°00'00"	45.00'	70.69'	45.00'
C4	14°19'38"	304.00'	76.02'	38.21'
C5	11°25'56"	296.00'	59.06'	29.63'
C6	11°06'26"	330.00'	63.99'	32.10'
C7	90°46'32"	90.00'	142.59'	91.23'
C8	89°13'28"	90.00'	140.15'	88.79'
C9	90°46'32"	90.00'	142.59'	91.23'
C10	28°15'10"	50.00'	24.66'	12.58'
C11	123°28'10"	96.00'	210.23'	186.27'
C12	9°59'12"	165.00'	28.76'	14.42'
C13	243°37'0"	193.66'	82.99'	42.14'
C14	9°59'12"	165.00'	28.76'	14.42'

NOTES:

1. A COORDINATE LISTING, OR EQUAL, OF THE PROVIDED DRAINAGE STRUCTURE LOCATIONS IS AVAILABLE AT GROUP FOUR, INC.
2. ALL NECESSARY OFF-SITE CONSTRUCTION EASEMENTS AND PERMITS SHALL BE OBTAINED PRIOR TO COMMENCING CONSTRUCTION.
3. ALL GRATES ARE FLAT UNLESS OTHERWISE NOTED.
4. ALL CATCH BASINS ARE TYPE 1 UNLESS OTHERWISE NOTED.
5. FOOTING DRAINS SHALL BE CONNECTED TO THE DOWNSPOUT TIGHTLINE SYSTEM WHERE PRACTICAL, AND SHALL BE DESIGNED TO BE ABOVE THE HIGH WATER ELEVATION OF THE RESPECTIVE DETENTION POND. OTHERWISE, A POSITIVE CRAWL SPACE DRAIN SHALL BE PROVIDED WHICH SHALL BE CONNECTED TO THE DOWNSPOUT TIGHTLINE SYSTEM.
6. ALL YARD DRAINS SHALL CONFORM TO SNO. CO. STD. DWG. NO. 9-130 UNLESS OTHERWISE NOTED.
7. ROAD IMPROVEMENTS FOR 35th AVE. S.E. (FROM SEATTLE HILL ROAD TO SR 96) ARE CURRENTLY BEING DESIGNED AS PART OF SNOHOMISH COUNTY DEPARTMENT OF PUBLIC WORKS PROJECT NO. RC 1069. THE IMPROVEMENTS ARE EXPECTED TO BE CONSTRUCTED PRIOR TO THE PROPOSED VILLAGE AT WEBSTER'S POND PROJECT. TO INSURE CONFORMANCE WITH THESE IMPROVEMENTS, THE FUTURE ROAD DESIGN HAS BEEN DEPICTED PER THE DESIGN DRAWINGS PREPARED BY ENTRANCO (90 % REVIEW SUBMITTAL). IF THESE IMPROVEMENTS ARE NOT IN PLACE PRIOR TO THE CONSTRUCTION OF THE VILLAGE AT WEBSTER'S POND, THE ENGINEER SHALL BE CONTACTED FOR POSSIBLE PLAN REVISIONS.
8. REFER TO TRAFFIC CONTROL PLAN FOR STRIPING, SIGNAGE AND DESIGN, OF ALL TRAFFIC CALMING DEVICES.
9. THE YARDS OF SOME LOTS SHALL BE DIRECTED TO A BACKYARD DRAIN TO BE INSTALLED BY THE BUILDER AS SHOWN ON DETAIL 9, SHT. 14. BACKYARD DRAINS SHALL COMPLY WITH SNO. CO. STD. DWG. NO. 9-130. SEE TABLE PROVIDED ON SHT. 14 FOR LOTS REQUIRING BACKYARD DRAINS.
10. A 4' HIGH FENCE IS TO BE INSTALLED ALONG THE TOP OF WALL IN THE AREA OF LOTS 33-44 (DIV. 1), LOTS 34-36, 37 & 42 (DIV. 3) PRIOR TO OCCUPANCY OF INDIVIDUAL HOME.
11. FOR ALL NEW HYDRANT INSTALLATIONS, EITHER PUBLIC OR PRIVATE, THE DEVELOPER SHALL COLOR CODE THE TOPS OF THE HYDRANT(S) TO DESIGNATE THE LEVEL OF SERVICE BEING PROVIDED BY THAT HYDRANT. THE TOPS OF THE HYDRANT(S) SHALL BE COLORED GREEN (1000 TO 1499 GPM).

IN ADDITION, THE DEVELOPER SHALL ALSO INSTALL BLUE STREET REFLECTORS TO INDICATE HYDRANT LOCATIONS (1' OFFSET FROM ROAD CENTERLINE ON THE HYDRANT SIDE). COLOR CODING OF NEW HYDRANT(S) AND THE INSTALLATION OF BLUE STREET REFLECTORS SHALL BE COMPLETE PRIOR TO FINAL APPROVAL OF ANY DEVELOPMENT OR NEW CONSTRUCTION.

12. LOT 19, DIV. 1 SHALL TAKE ACCESS FROM 35th DR. SE & LOT 20, DIV. 1 SHALL TAKE ACCESS FROM 36th AVE. SE.
13. AS REQUIRED BY THE SNOHOMISH COUNTY STAFF BIOLOGIST, THE UNAUTHORIZED EXISTING STORM SYSTEM SHOWN ON THESE PLANS SHALL BE PLUGGED USING BENTONITE PLUGS AND ABANDONED IN PLACE.
14. A PEDESTRIAN HANDRAIL PER DETAIL 1, SHT. 25 SHALL BE INSTALLED AT THE TOP OF THE WALL ALONG BOTH SIDES OF THE WETLAND CROSSING (STA. 19+50 – STA. 22+50).
15. THIS SITE IS ENCUMBERED BY A DRAINAGE EASEMENT AS RECORDED UNDER AUDITOR'S FILE NO. 9001220471, WHICH SHALL BE EXTINGUISHED OR APPROPRIATELY ALTERED AS REQUIRED BY CONDITIONS 4.B.vii.

BOB STOKKE, STAFFORD HOMES _____ DATE _____

16. SSHI LLC, D.B.A. STAFFORD HOMES, DOES HEREBY ACKNOWLEDGE THAT THE FINAL PLAT FOR THE PROPOSED PLAT OF "THE VILLAGE AT WEBSTER'S POND" AS NOTED HEREIN SHALL NOT BE RECORDED BY SNOHOMISH COUNTY, UNTIL SUCH TIME AS CONDITION 4.B.vii., AS ORIGINALLY APPROVED OR SUBSEQUENTLY MODIFIED BY THE HEARING EXAMINER, IS ADDRESSED TO THE SATISFACTION OF SNOHOMISH COUNTY, TOGETHER WITH ALL OTHER APPLICABLE CONDITIONS OF APPROVAL. STAFFORD HOMES FURTHER ACKNOWLEDGES THAT THEY ARE PROCEEDING WITH CONSTRUCTION AT THEIR OWN RISK, PRIOR TO RESOLUTION OF CONDITION 4.B.vii.

BOB STOKKE, STAFFORD HOMES _____ DATE _____

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION

BY _____

R/W PERMIT NO. _____

NO.	REVISION	DATE	BY
1.	AS-BUILTS BY GROUP FOUR, INC. (AB)	5/20/03	RFA

FILENAME: G:\Projects\98-008\Survey\AS-BUILTS\AsBuilts.dwg, 6/23/2003 07:49:21, Plotted by: L.Tarbox
LAST PLOTTED: 6/23/2003 07:49:21 BY: L.Tarbox
UPDATED: dwf 2/6/2003 07:49:21 Photoshop 6, Photoshop 6ps, LG Graph
LAND_FLOOR: w:\data\Projects\Survey & Drainage art 1.lg

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

CARMEN O. VANIER
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES

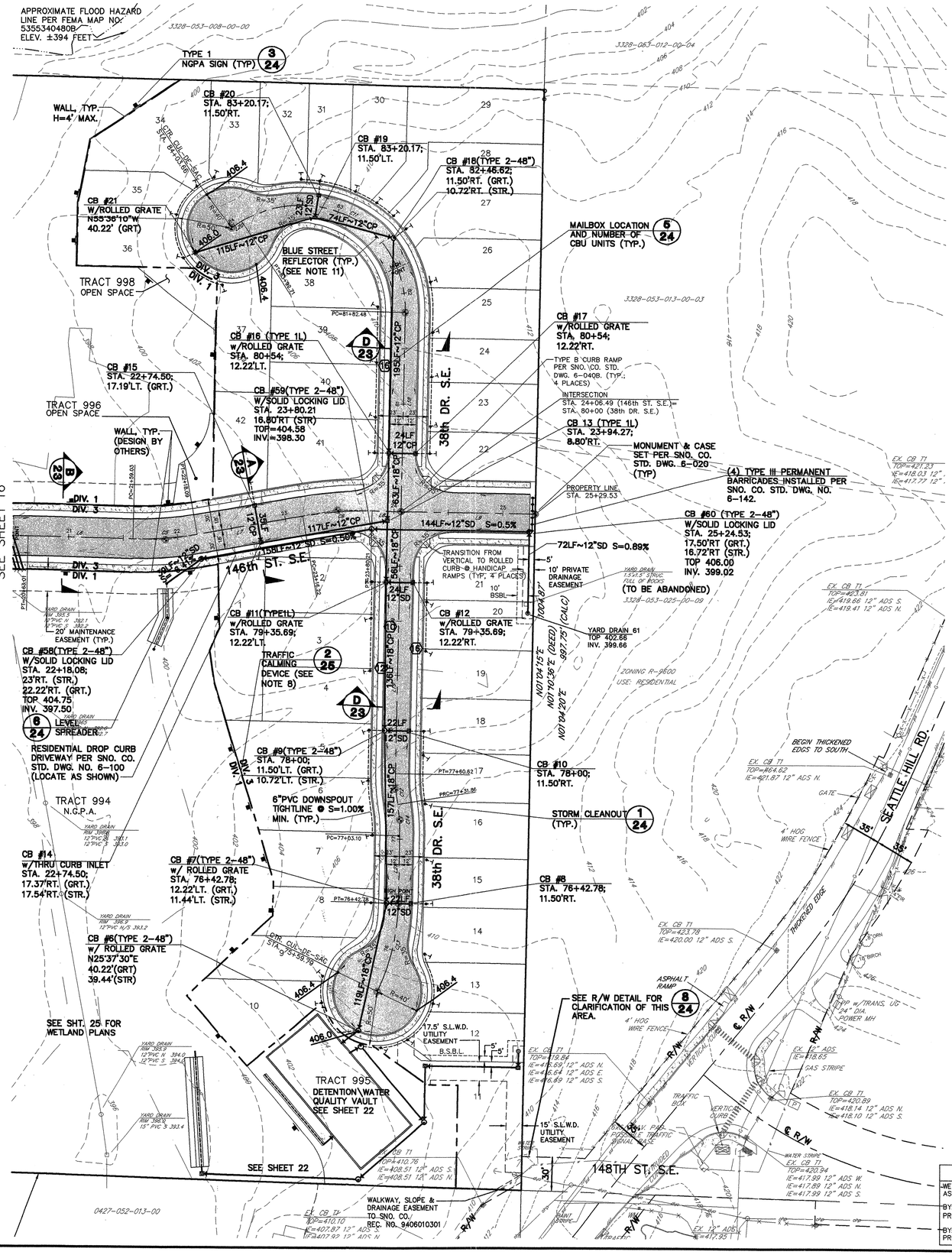
AS-BUILTS
VILLAGE AT WEBSTER'S POND
ROADWAY & DRAINAGE PLAN
SNOHOMISH COUNTY WASHINGTON

SHT 16 OF 26

JOB NO: 99-8040

HDEV-2388

SW1/4, SW1/4, SEC. 33, TWP. 28 N., RGE. 5 E., W.M.


APPROXIMATE FLOOD HAZARD LINE PER FEMA MAP NO: 53553404808- ELEV. ±394 FEET
3328-053-008-00-00
TYPE 1 NGPA SIGN (TYP) 3/24
WALL, TYP. H=4' MAX.
CB #20 STA. 83+20.17; 11.50'RT.
CB #19 STA. 83+20.17; 11.50'LT.
CB #18(TYPE 2-48") STA. 82+46.62; 11.50'RT. (GRT.) 10.72'RT. (STR.)
CB #21 W/ROLLED GRATE N55°36'10"W 40.22' (GRT)
BLUE STREET REFLECTOR (TYP.) (SEE NOTE 11)
MAILBOX LOCATION AND NUMBER OF CBU UNITS (TYP.) 5/24
TRACT 998 OPEN SPACE
CB #16 (TYPE 1L) W/ROLLED GRATE STA. 80+54; 12.22'LT.
CB #17 W/ROLLED GRATE STA. 80+54; 12.22'RT.
TYPE B CURB RAMP PER SNO. CO. STD. DWG. 6-040B. (TYP.; 4 PLACES)
INTERSECTION STA. 24+06.49 (146th ST. S.E.)= STA. 80+00 (38th DR. S.E.)
CB #15 STA. 22+74.50; 17.19'LT. (GRT.)
CB #59(TYPE 2-48") W/SOLID LOCKING LID STA. 23+80.21 16.80'RT (STR) TOP=404.58 INV=398.30
CB 13 (TYPE 1L) STA. 23+94.27; 8.80'RT.
MONUMENT & CASE SET PER SNO. CO. STD. DWG. 6-020 (TYP)
(4) TYPE III PERMANENT BARRICADES INSTALLED PER SNO. CO. STD. DWG. NO. 6-142.
TRACT 996 OPEN SPACE
WALL, TYP. (DESIGN BY OTHERS)
PROPERTY LINE STA. 25+29.53
CB #60 (TYPE 2-48") W/SOLID LOCKING LID STA. 25+24.53; 17.50'RT (GRT.) 16.72'RT (STR.) TOP 406.00 INV. 399.02
72LF~12"SD S=0.89%
144LF~12"SD S=0.5%
SEE SHEET 16
146th ST. S.E.
38th DR. S.E.
TRANSITION FROM VERTICAL TO ROLLED CURB @ HANDICAP RAMPS (TYP.; 4 PLACES)
5' 10' PRIVATE DRAINAGE EASEMENT
YARD DRAIN 1.5'x1.5' STRUC. TOP OF GRATE (TO BE ABANDONED)
YARD DRAIN 61 TOP 402.66 INV. 399.66
CB #11(TYPE1L) W/ROLLED GRATE STA. 79+35.69; 12.22'LT.
CB #12 W/ROLLED GRATE STA. 79+35.69; 12.22'RT.
TRAFFIC CALMING DEVICE (SEE NOTE 8) 2/25
20' MAINTENANCE EASEMENT (TYP.)
CB #58(TYPE 2-48") W/SOLID LOCKING LID STA. 22+18.08; 23'RT. (STR.) 22.22'RT. (GRT.) TOP 404.75 INV. 397.50
6/24 LEVEL SPREADER
RESIDENTIAL DROP CURB DRIVEWAY PER SNO. CO. STD. DWG. NO. 6-100 (LOCATE AS SHOWN)
TRACT 994 N.G.P.A.
CB #9(TYPE 2-48") STA. 78+00; 11.50'LT. (GRT.) 10.72'LT. (STR.)
6"PVC DOWNSPOUT TIGHTLINE @ S=1.00% MIN. (TYP.)
STORM CLEANOUT 1/24 (TYP.)
CB #10 STA. 78+00; 11.50'RT.
CB #14 w/THRU CURB INLET STA. 22+74.50; 17.37'RT. (GRT.) 17.54'RT. (STR.)
CB #7(TYPE 2-48") w/ ROLLED GRATE STA. 76+42.78; 12.22'LT. (GRT.) 11.44'LT. (STR.)
CB #6(TYPE 2-48") w/ ROLLED GRATE N25°37'30"E 40.22'(GRT) 39.44'(STR)
CB #8 STA. 76+42.78; 11.50'RT.
SEE R/W DETAIL FOR CLARIFICATION OF THIS AREA. 8/24
SEE SHT. 25 FOR WETLAND PLANS
TRACT 995 DETENTION\WATER QUALITY VAULT SEE SHEET 22
SEE SHEET 22
15' S.L.W.D. UTILITY EASEMENT
17.5' S.L.W.D. UTILITY EASEMENT
WALKWAY, SLOPE & DRAINAGE EASEMENT TO SNO. CO. REC. NO. 9406010301
148TH ST. S.E.
SEATTLE HILL RD.
0427-052-013-00
3328-053-012-00-04
3328-053-013-00-03
3328-053-025-00-09
ZONING R-9600 USE: RESIDENTIAL
BEGIN THICKENED EDGE TO SOUTH
THICKENED EDGE
ASPHALT RAMP
4' HOG WIRE FENCE
GATE
EX. CB T1 TOP=423.81 IE=419.66 12" ADS S. IE=419.41 12" ADS N.
EX. CB T1 TOP=421.23 IE=418.03 12" IE=417.77 12"
EX. CB T1 TOP=423.78 IE=420.00 12" ADS S.
EX. CB T1 TOP=420.89 IE=418.14 12" ADS N. IE=418.10 12" ADS S.
EX. CB T1 TOP=420.94 IE=417.99 12" ADS W. IE=417.89 12" ADS N. IE=417.99 12" ADS S.
EX. CB T1 TOP=419.84 IE=416.69 12" ADS N. IE=416.64 12" ADS E. IE=416.69 12" ADS S.
EX. CB T1 TOP=410.76 IE=408.51 12" ADS S. IE=408.51 12" ADS N.
EX. CB T1 TOP=410.10 IE=407.87 12" ADS W. IE=407.92 12" ADS N.
EX. 12" ADS IE=417.95
EX. 4" ADS IE=418.65
GAS STRIPE
TRAFFIC BOX
VERTICAL CURB
EX. PSV. PAD EXISTING TRAFFIC SIGNAL BASE
WATER STRIPE
PAINT STRIPE
TYP. w/TRANS. UG 24" DIA. POWER MH
18" BIRCH
YARD DRAIN INV. 398.3 12"PVC N/S 393.2
YARD DRAIN INV. 398.5 12"PVC N 394.0 12"PVC S 394.0
YARD DRAIN INV. 398.5 15" PVC S 393.4
YARD DRAIN INV. 398.5 12"PVC N 392.1 12"PVC S 392.2
YARD DRAIN INV. 398.5 12"PVC W 392.1 12"PVC S 392.0
PERF. OIL-DE-SAC STA. 9+37.59
PERF. OIL-DE-SAC STA. 23+80.21
PC=81+82.48
PT=77+60.82
PRC=77+31.86
PC=77+03.10
PT=76+42.78
HIGH POINT
PC=81+99.03
PRC=81+99.03
R=40'
R=50'
R=35'
R=440'
R=460'
R=360'
R=340'
R=320'
R=300'
R=280'
R=260'
R=240'
R=220'
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R=180'
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R=140'
R=120'
R=100'
R=80'
R=60'
R=50'
R=40'
406.4
406.0
402.0
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90.0
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82.0
78.0
74.0
70.0
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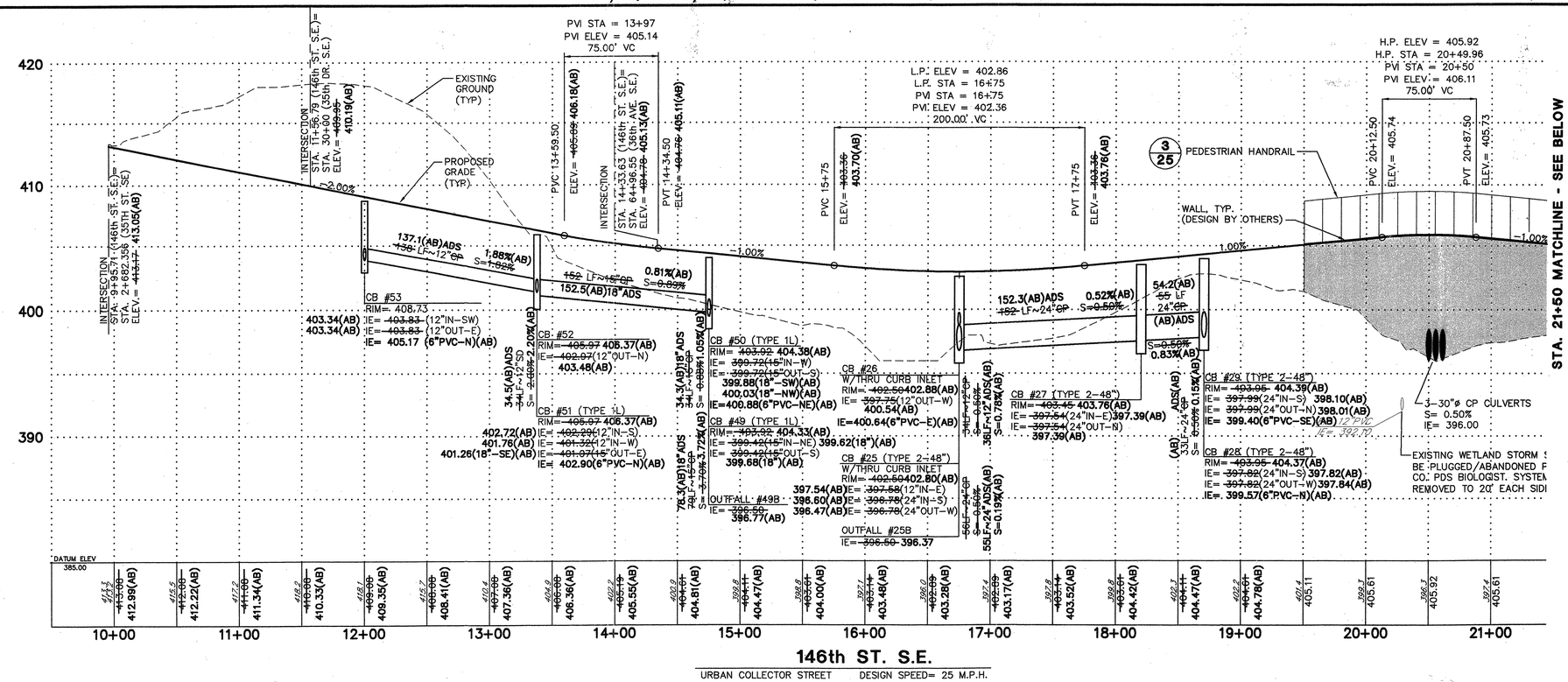
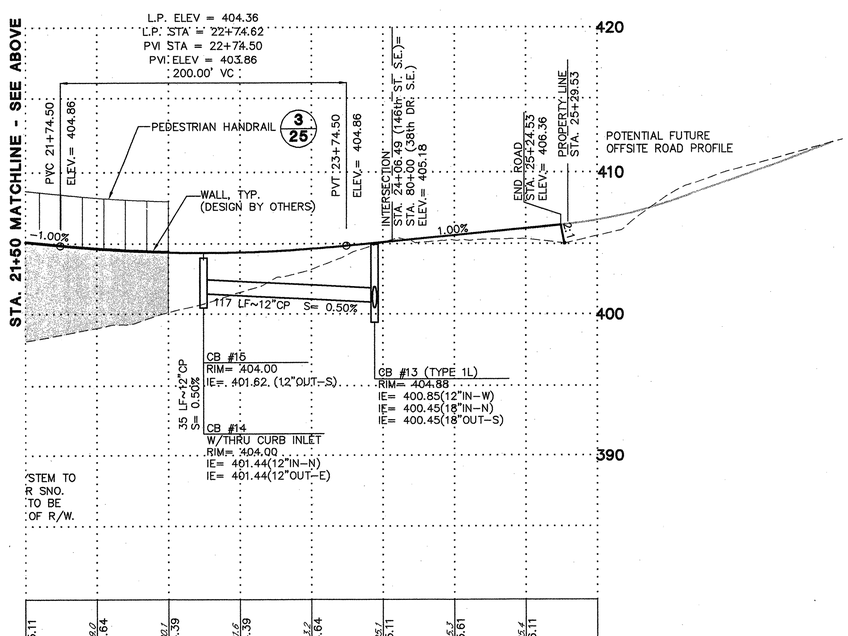
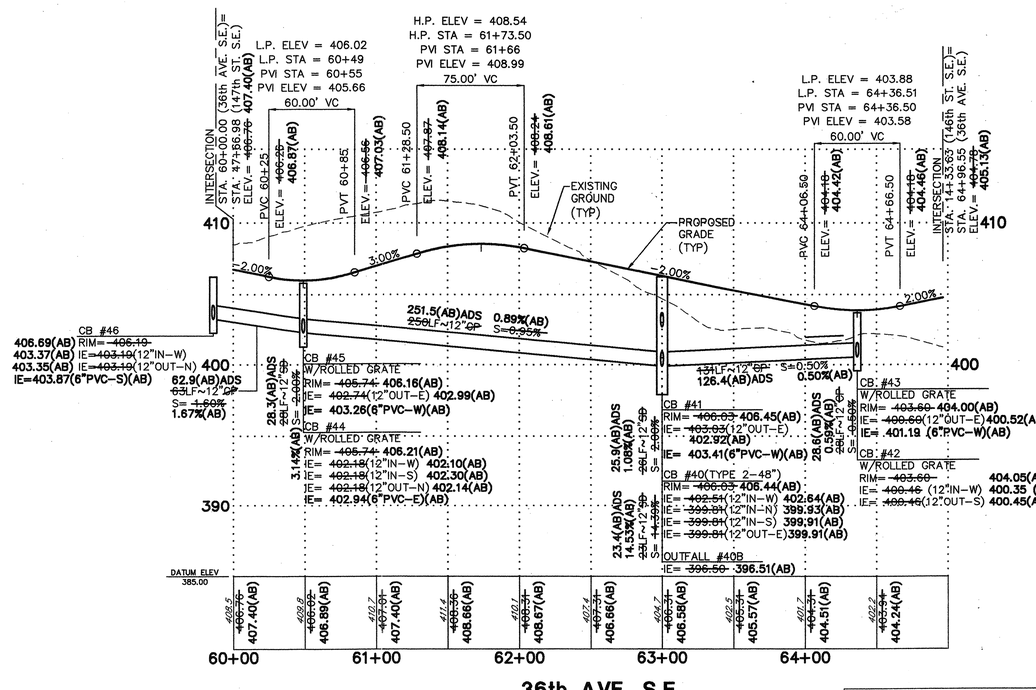
SW1/4, SW1/4 ,SEC. 33 ,TWP. 28 ,RGE. 5 ,W.M.







"AS-BUILT"

WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS

BY: _____ 9-3-03
PROJECT ENGINEER/SURVEYOR DATE

BY: _____ FOR 9-4-03
PROJECT DEVELOPER DATE

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION

BY _____

R/W PERMIT NO. _____

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

NO.	REVISION	DATE	BY
1.	AS-BUILTS BY GROUP FOUR, INC. (AB)	4-9-03	RFA

FILENAME P:\Projects\99-8040\ab-asbuilt.mp2005.dwg
LAST SAVED 03/09/2003 09:43 by RFA
UPDATED 03/09/2003 09:43 by RFA
LAYOUT(S) ASBUILT-1

DANIEL K. ROOPE — STATE OF WASHINGTON — 12964 — REGISTERED PROFESSIONAL ENGINEER — EXPIRES: 11/4/04

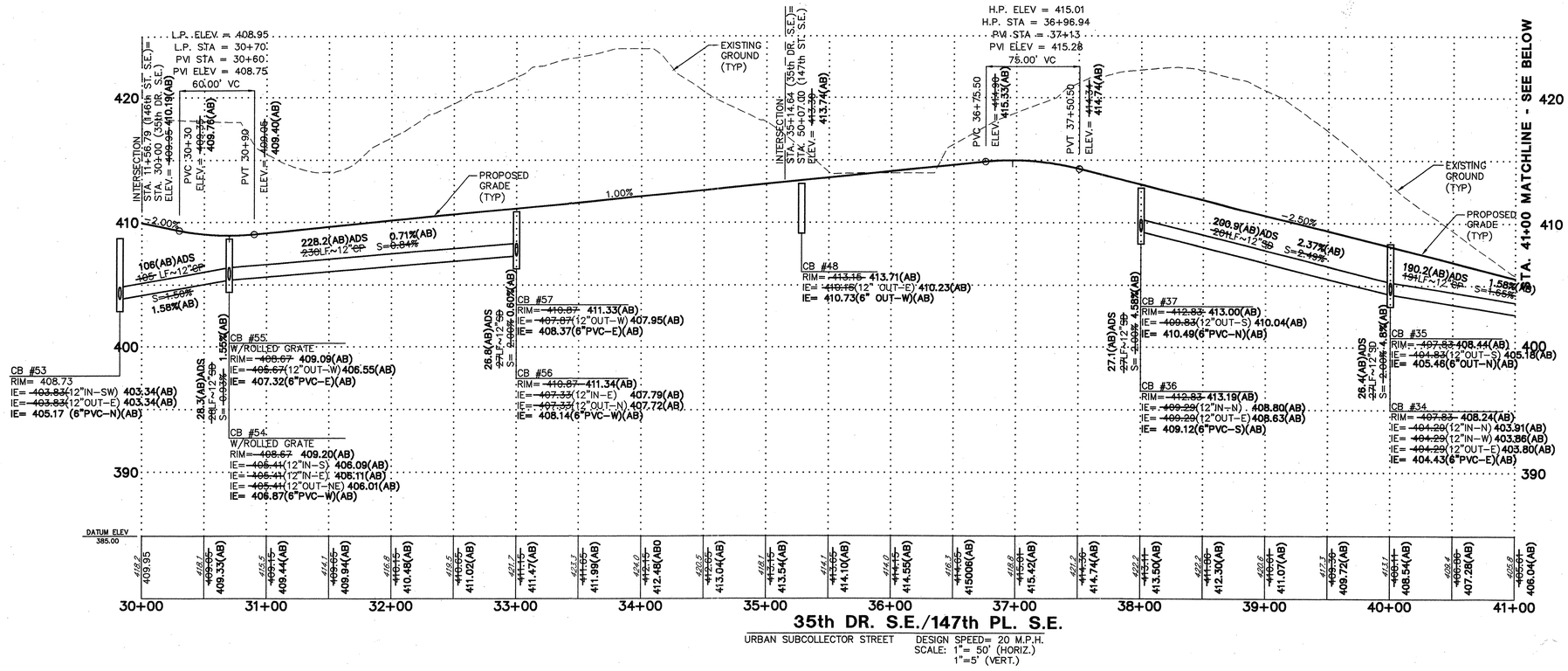
O. VANER — STATE OF WASHINGTON — 15764 — REGISTERED LAND SURVEYOR — PROFESSIONAL — EXPIRES:

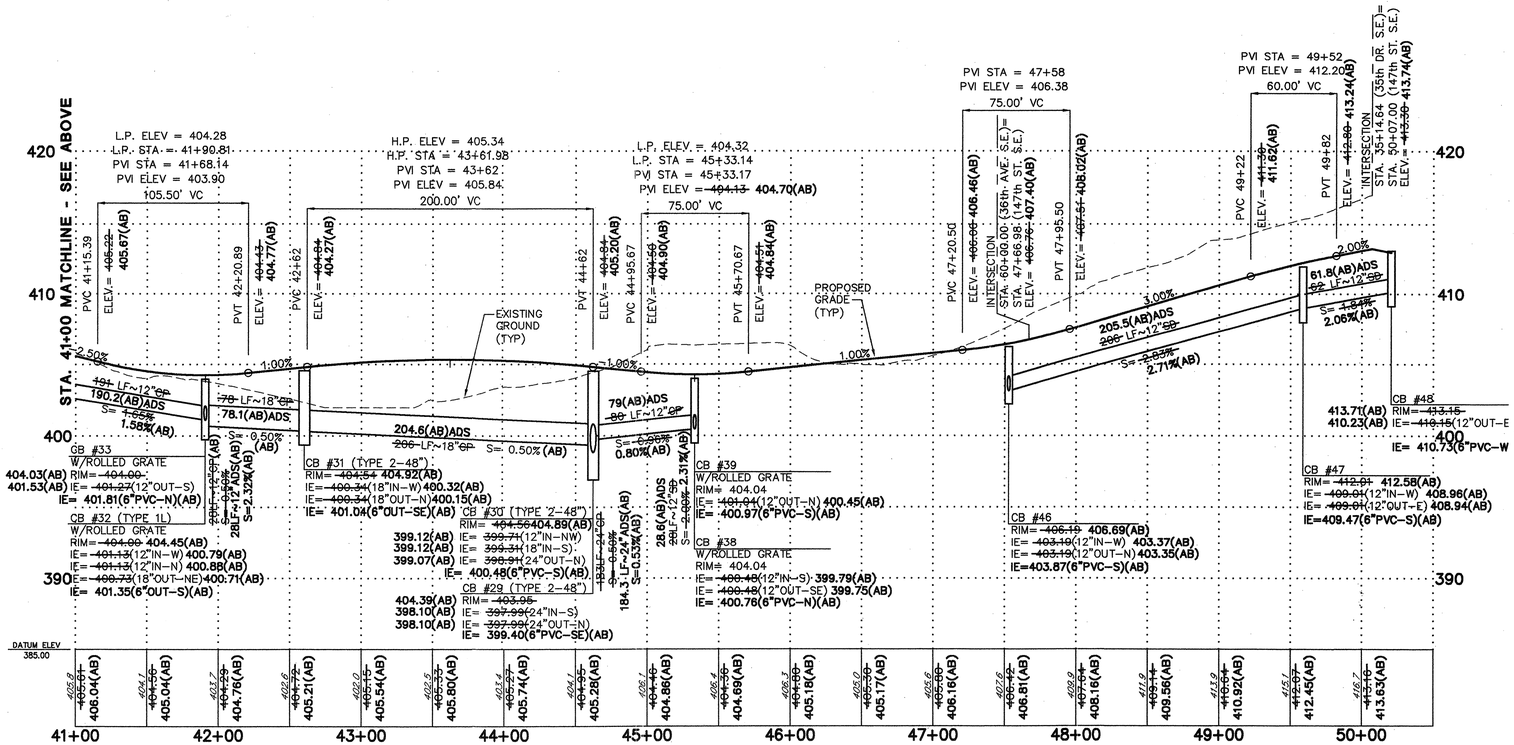
GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

AS-BUILTS
VILLAGE AT WEBSTER'S POND
ROADWAY & DRAINAGE PROFILES
SNOHOMISH COUNTY WASHINGTON

SHT 18 OF 26
JOB NO:99-8040

HDEV-2390





NOTE:
AS-BUILT CENTERLINE ELEVATIONS ARE TO TOP OF ATB ONLY, APPROXIMATELY 2" BELOW DESIGN ELEVATION.

"AS-BUILT"

WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE CONSTRUCTED AS SHOWN ON THESE PLANS

BY: _____ 9-3-03
PROJECT ENGINEER/SURVEYOR DATE

BY: _____ 9-4-03
PROJECT DEVELOPER DATE

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION

BY _____
R/W PERMIT NO. _____

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

NO.	REVISION	DATE	BY
1.	AS-BUILT BY GROUP FOUR INC. (AB)	4-9-03	RFA

ELEVATIONS IN THIS PLAN SET ARE BASED ON THE SNOHOMISH COUNTY BENCHMARK NETWORK USING THE NAVD88 DATUM. THE CONVERSION FACTOR FROM NGVD29 TO NAVD88 IS -0.19 FEET. DATUM: NAVD88 CONVERSION: NGVD29+0.19=NAVD88

STATE OF WASHINGTON — CHARLES F. ROUPEN — No. 14400 — REGISTERED PROFESSIONAL ENGINEER — EXPIRES: 11-6-04

CAMDEN C. VANIER — STATE OF WASHINGTON — No. 19911 — REGISTERED PROFESSIONAL ENGINEER — EXPIRES:

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

AS-BUILTS
VILLAGE AT WEBSTER'S POND
ROADWAY & DRAINAGE PROFILES
SNOHOMISH COUNTY WASHINGTON

SHT 19 OF 26
JOB NO:99-8040

HDEV-2391

SW1/4, SW1/4,SEC. 35 ,TWP. 28 ,RGE. 5 ,W.M.

38th DR. S.E. (SOUTH)

URBAN ACCESS STREET DESIGN SPEED= 20 M.P.H.
SCALE: 1"= 50' (HORIZ.)
1"=5' (VERT.)

38th DR. S.E. (NORTH)

URBAN ACCESS STREET DESIGN SPEED= 20 M.P.H.
SCALE: 1"= 50' (HORIZ.)
1"=5' (VERT.)

"AS-BUILT"

WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS

BY: _____ _____
PROJECT ENGINEER/SURVEYOR DATE

BY: _____ _____
PROJECT DEVELOPER DATE

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____ 10/17/02
R/W PERMIT NO. 01107947

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

NO. REVISION DATE BY

FILENAME: J:\99-8040\APPROVED\ESPRD-V3\
EPSTOOL 06 & 2001 PTS#11

I. O. VANDEN BOSCH 2001 STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER 31784
EXPIRES 11.15.04

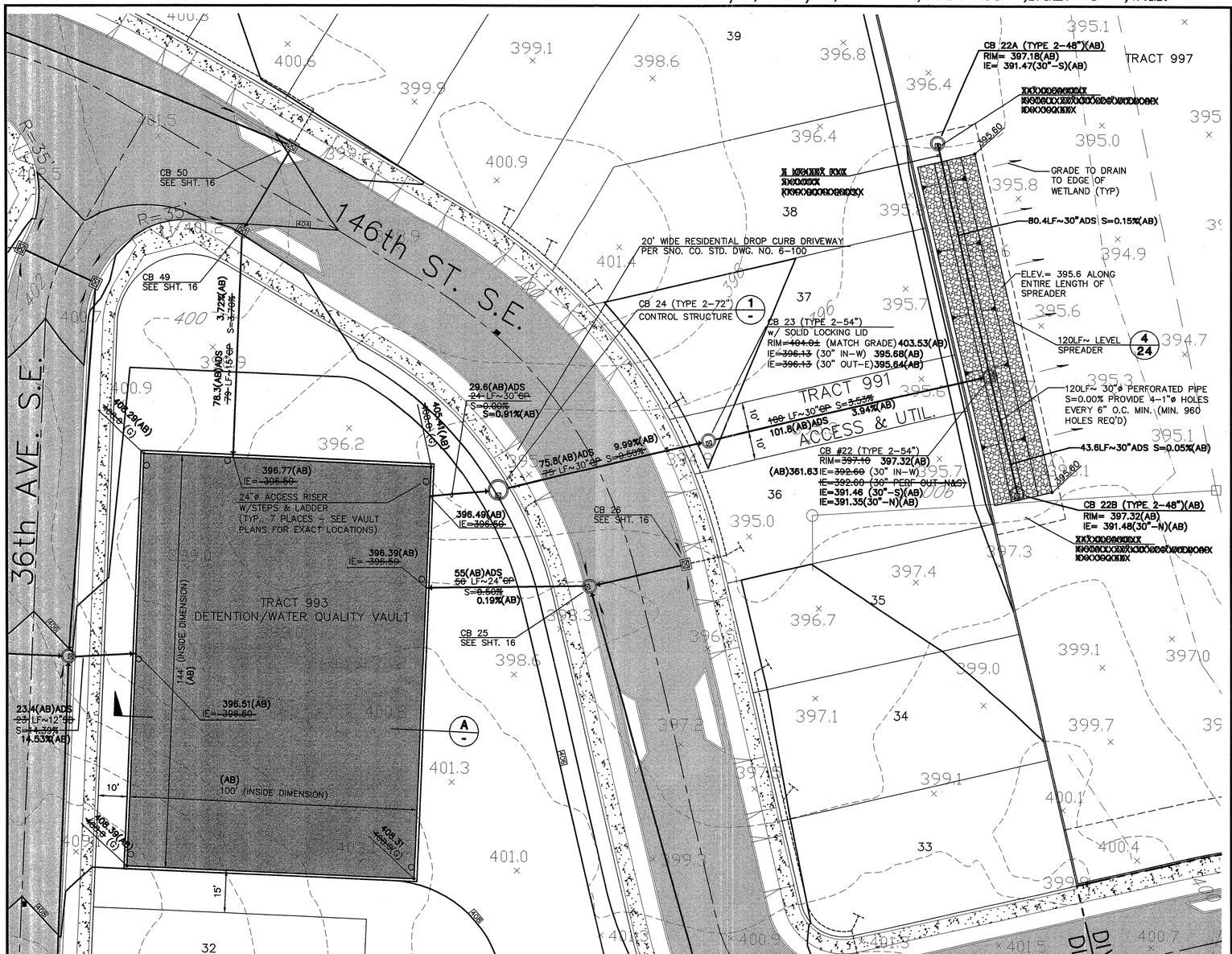
GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

VILLAGE AT WEBSTER'S POND
ROADWAY & DRAINAGE PROFILES
SNOHOMISH COUNTY WASHINGTON

SHT 20 OF 26
JOB NO:99-8040

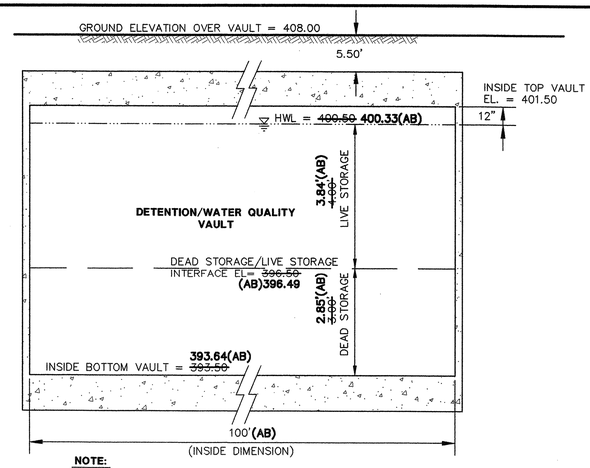
HDEV-2392

SW1/4, SW1/4 ,SEC. 33 ,TWP. 28 ,RGE. 5 ,W.M.



DETENTION/WATER QUALITY VAULT PLAN

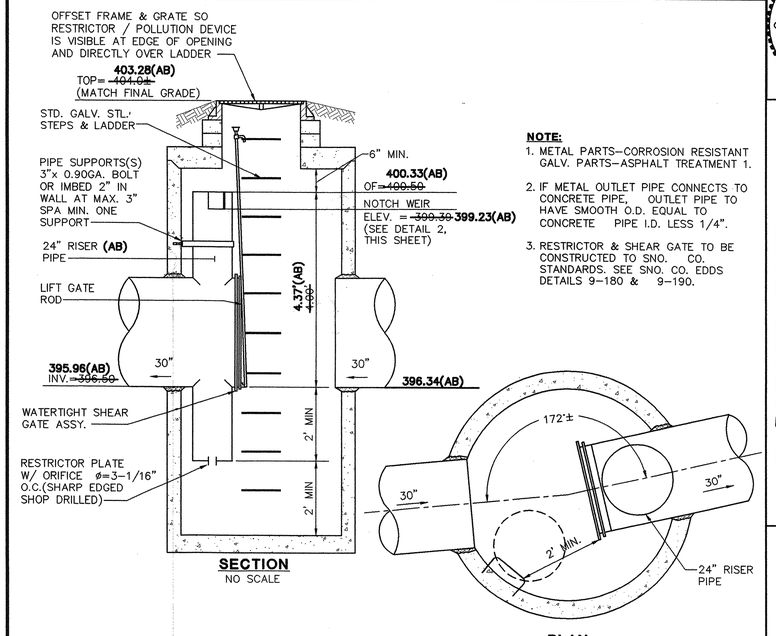
SCALE 1"=20'



NOTE:
THIS IS NOT A STRUCTURAL PLAN. IT IS INTENDED FOR DIMENSIONS AND ELEVATIONS PURPOSES ONLY. SEE STRUCTURAL PLAN FOR VAULT DESIGN.

A DETENTION/WATER QUALITY VAULT SECTION

SCALE: 1"= 10' H
1"= 2' V



NOTE:
1. METAL PARTS-CORROSION RESISTANT GALV. PARTS-ASPHALT TREATMENT 1.
2. IF METAL OUTLET PIPE CONNECTS TO CONCRETE PIPE, OUTLET PIPE TO HAVE SMOOTH O.D. EQUAL TO CONCRETE PIPE I.D. LESS 1/4".
3. RESTRICTOR & SHEAR GATE TO BE CONSTRUCTED TO SNO. CO. STANDARDS. SEE SNO. CO. EDDS DETAILS 9-180 & 9-190.

1 CB #24 - CONTROL STRUCTURE

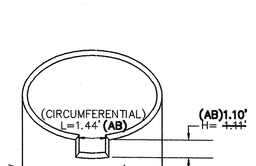
TYPE 2 - 72"

DETENTION SUMMARY CHART

STORM EVENT	LIVE STORAGE VOLUME (cf)			DEAD STORAGE VOLUME (cf)			RELEASE RATE (cfs)		
	REQUIRED	DESIGNED	AS-BUILT	REQUIRED	DESIGNED	AS-BUILT	REQUIRED	DESIGNED	AS-BUILT
2(1/2)	31,864	41,616	*31,219	XXX	XXX		0.437	0.437	0.417
10	36,545	47,664	*43,909	XXX	XXX		1.697	1.697	1.271
100	44,031	57,600	*51,166	27,878	43,200	41,040	5.321	5.321	3.672

W/CORRECTION FACTOR = 52,837 c.f.
List lots that flow to detention facility SEE TABLE- SHT. 23
Design impervious area for lot development SEE TABLE- SHT. 23 sq.ft./lot

*THESE ARE THE VOLUMES GENERATED BY ROUTING THE DEVELOPED INFLOW HYDROGRAPHS THROUGH THE AS-BUILT DETENTION FACILITY. THEY DO NOT NECESSARILY REFLECT THE AS-BUILT VOLUME PROVIDED WITHIN THE FACILITY.
DESIGN VOLUME REQ'D.= 52,837 C.F.
AS-BUILT VOLUME PROV'D= 55,296 C.Y.
THE REQUIRED/DESIGNED RELEASE RATES ARE NOT EXCEEDED BY THE AS-BUILT FACILITY. THE AS-BUILT VOLUME PROV'D IS GREATER THAN THE DESIGN VOLUME REQ'D. THEREFORE, THIS FACILITY MEETS OR EXCEEDS THE REQUIRED DESIGN STANDARDS.



2 NOTCH WEIR DETAIL

NO SCALE

FOR FLOWS & VOLUMES ONLY

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

"AS-BUILT" (DIV. 1)
WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS
BY: _____ DATE 6/23/03
PROJECT ENGINEER (SURVEYOR)
BY: _____ DATE 6/23/03
PROJECT DEVELOPER

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____
R/W PERMIT NO. _____

NO.	REVISION	DATE	BY
1.	AS-BUILTS BY GROUP FOUR, INC. (AB)	4-9-02	RFA

FILENAME P:\Projects\98-108\dwg\AS-BUILT\wb1TDS.dwg
UPDATED: WED, 09 APR 2003 07:01:53 \\FILE_1\98 SHT 21> Group4
LOGIN:ANDY \\FILE_1\98 SHT 21

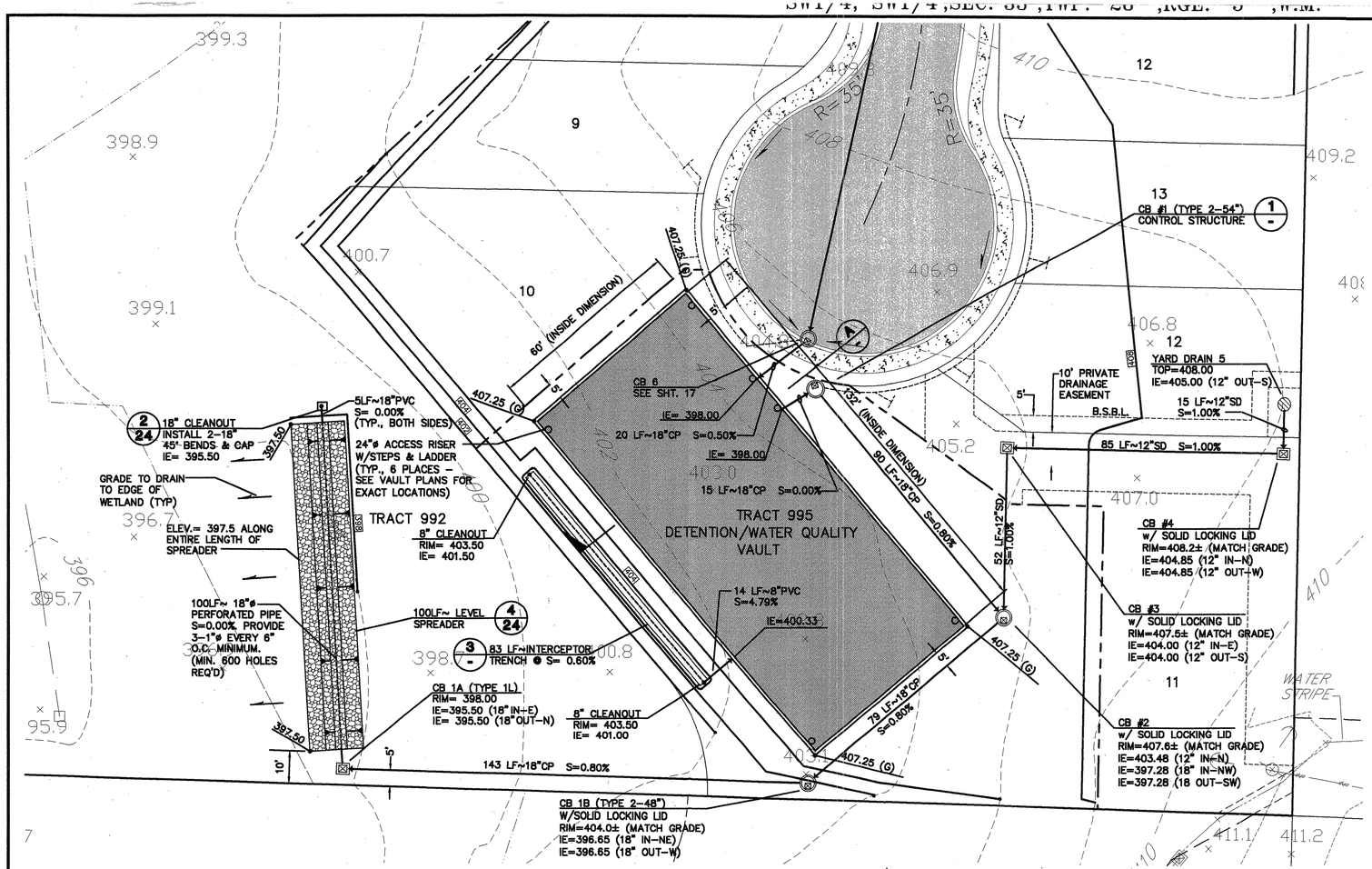
GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

AS-BUILTS
VILLAGE AT WBSTER'S POND
TRACT 993
DETENTION/WATER QUALITY VAULT PLAN
SNOHOMISH COUNTY WASHINGTON

SHT 21 OF 26
JOB NO:99-8040

HDEV-2393

SW1/4, SW1/4,SEC. 35 ,TWP. 28 ,RGE. 5 ,W.M.

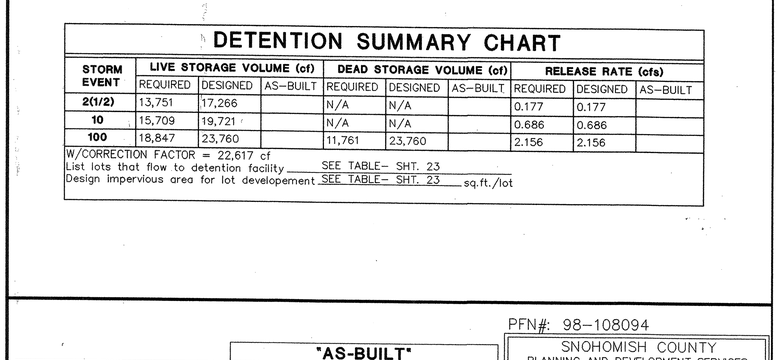


DETENTION/WATER QUALITY VAULT PLAN

SCALE 1"=20'

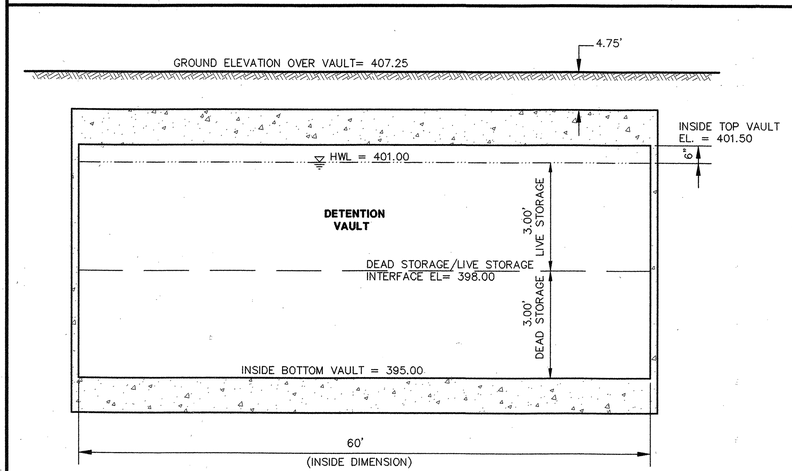
2 NOTCH WEIR DETAIL

NO SCALE



3 INTERCEPTOR TRENCH

NO SCALE

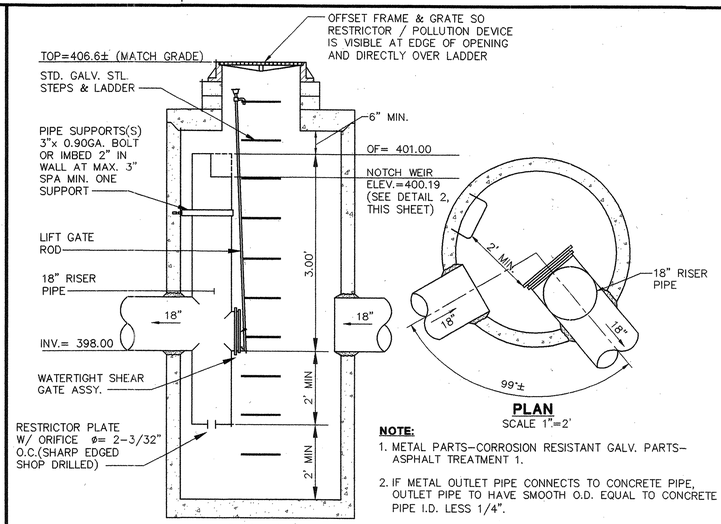


NOTE:

THIS IS NOT A STRUCTURAL PLAN. IT IS INTENDED FOR DIMENSIONS AND ELEVATIONS PURPOSES ONLY. SEE STRUCTURAL PLAN FOR VAULT DESIGN.

A DETENTION/WATER QUALITY VAULT SECTION

SCALE: 1"= 10' H
1"= 2' V



SECTION

NO SCALE

PLAN

SCALE 1"=2'

NOTE:

1. METAL PARTS-CORROSION RESISTANT GALV. PARTS-ASPHALT TREATMENT 1.
2. IF METAL OUTLET PIPE CONNECTS TO CONCRETE PIPE, OUTLET PIPE TO HAVE SMOOTH O.D. EQUAL TO CONCRETE PIPE I.D. LESS 1/4".
3. RESTRICTOR & SHEAR GATE TO BE CONSTRUCTED TO SNO. CO. STANDARDS. SEE SNO. CO. EDDS DETAILS 9-180 & 9-190.

1 CB #1 - CONTROL STRUCTURE

TYPE 2 - 54"

DETENTION SUMMARY CHART

STORM EVENT	LIVE STORAGE VOLUME (cf)			DEAD STORAGE VOLUME (cf)			RELEASE RATE (cfs)		
	REQUIRED	DESIGNED	AS-BUILT	REQUIRED	DESIGNED	AS-BUILT	REQUIRED	DESIGNED	AS-BUILT
2(1/2)	13,751	17,266		N/A	N/A		0.177	0.177	
10	15,709	19,721		N/A	N/A		0.686	0.686	
100	18,847	23,760		11,761	23,760		2.156	2.156	

W/CORRECTION FACTOR = 22,617 cf
List lots that flow to detention facility SEE TABLE- SHT. 23
Design impervious area for lot developement SEE TABLE- SHT. 23 sq.ft./lot

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

"AS-BUILT"

WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS

BY: _____ DATE
PROJECT ENGINEER/SURVEYOR

BY: _____ DATE
PROJECT DEVELOPER

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____ 10/19/2004
R/W PERMIT NO. 01109947

NO. | REVISION | DATE | BY

FILENAME: J:\VP-PHAN\PLTDSCRWALT-VR3
PLOTTED: MAY 06, 2004 07:39:19

O. VANDEN BOSCH 21661 STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER
EXPIRES 3-7-2004

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • FAX(206)362-4244 • (206)362-3919
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

VILLAGE AT WEBSTER'S POND
TRACT 995
DETENTION/WATER QUALITY VAULT PLAN
SNOHOMISH COUNTY WASHINGTON

SHT 22 OF 26

JOB NO:99-8040

4DEV-2394

SW1/4, SW1/4, SEC. 33, TWP. 28, RGE. 5, W.M.

STORM DRAINAGE NOTES

1. PIPES
   - A. THE ENGINEER SHALL PLACE A NOTE STATING THE MINIMUM PIPE SPECIFICATIONS ALLOWED PER THE DESIGN.
   - B. ALL STORM SEWER PIPE SHALL CONFORM WITH CHAPTER 9 OF THE SNOHOMISH COUNTY ENGINEERING DESIGN AND DEVELOPMENT STANDARDS (E.D.D.S.) AND DIVISION 7 OF THE WSDOT/APWA SPECIFICATIONS.
   - C. ALL PIPE SHALL BE PLACED ON STABLE EARTH, OR IF IN THE OPINION OF THE COUNTY INSPECTOR, THE EXISTING FOUNDATION IS UNSATISFACTORY, THEN IT SHALL BE EXCAVATED BELOW GRADE AND BACK FILLED WITH COMPACTED GRAVEL MATERIAL TO SUPPORT THE PIPE.
   - D. THE BACKFILL SHALL BE PLACED EQUALLY ON BOTH SIDES OF THE PIPE OR PIPE ARCH IN LAYERS WITH A LOOSE AVERAGE DEPTH OF 6", MAXIMUM DEPTH 8", THOROUGHLY TAMPING EACH LAYER. THESE COMPACTED LAYERS MUST EXTEND FOR ONE DIAMETER ON EACH SIDE OF THE PIPE OR TO THE SIDE OF THE TRENCH. MATERIALS TO COMPLETE THE FILL OVER PIPE SHALL BE THE SAME AS DESCRIBED. (REFER TO WSDOT STANDARD SPECIFICATION 7-04.3(3) AND STANDARD SPECIFICATION 2-03.3(14)C, METHOD B & C.
   - E. GALVANIZED STEEL CMP SHALL MEET THE REQUIREMENTS OF AASHTO DESIGNATION M-36, TYPE 1 AND TYPE 2 PIPE SHALL HAVE ASPHALT TREATMENT 1 OR BETTER.
   - F. CORRUGATED ALUMINUM PIPE AND COUPLING BANDS SHALL MEET THE REQUIREMENTS OF AASHTO M196 AND M197.
   - G. DOUBLE WALLED(SMOOTH INTERIOR) CORRUGATED POLYETHYLENE PIPE, MEETING THE REQUIREMENTS OF AASHTO M252 IN 8 INCH SIZE AND AASHTO M294S IN SIZES 12" THROUGH 36", IS AN ACCEPTABLE ALTERNATIVE TO SCHEDULE A CULVERT PIPE, AS SHOWN ON WSDOT/APWA STANDARD PLAN B-17 AND FOR STORM SEWERS IN ACCORDANCE WITH SNOHOMISH COUNTY STANDARDS.
   - H. BAND SIZE SHALL BE 12" FOR PIPE LESS THAN 42" DIAMETER AND 49" X 33" ARCH PIPE.
   - I. BACKFILL AROUND PIPE MUST BE COMPACTED TO A SPECIFIED AASHTO T-99 DENSITY OF 90%. USE REASONABLE CARE IN HANDLING AND INSTALLATION.
   - J. ALL NON-PERFORATED METAL PIPE SHALL HAVE NEOPRENE GASKETS AT THE JOINTS. O-RING GASKETS MAY BE USED FOR TYPE F COUPLING BAND.
   - K. A NOTE SPECIFYING THE GAGE AND BAND SIZE FOR ALL PIPES USED IN THE DESIGN SHALL BE PLACED ON THE PLANS.
2. CATCH BASINS AND MANHOLES
   - A. ALL CATCH BASINS SHALL BE TYPE 1 UNLESS OTHERWISE NOTED.
   - B. ALL CATCH BASINS WITH A DEPTH OVER 5.0 FEET TO THE FLOW LINE SHALL BE A TYPE II CB OR LARGER (MANHOLE).
   - C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL MANHOLE, INLET, AND CATCH BASIN FRAMES AND GRATES JUST PRIOR TO POURING OF CURBS AND PAVING.
   - D. ALL GRATES SHALL BE DEPRESSED 0.1 FEET BELOW PAVEMENT LEVEL.
   - E. E. CATCH BASIN FRAME AND GRATES SHALL BE OLYMPIC FOUNDRY MODEL 5435, 5435A, OR 50503A, LOCKING TYPE OR EQUAL. MODEL 5435A IS REFERRED TO AS A "THROUGH CURB INLET" ON THE PLAN. MODEL 50503A IS REFERRED TO AS A "ROLLED GRATE INLET" IN THE PLAN.
   - F. ALL TYPE II CATCH BASIN MANHOLES, INLET, AND CATCH BASINS SHALL HAVE LOCKING LIDS. ROLLED GRATE NOT APPROVED FOR OUTSIDE OF COUNTY RIGHT OF WAY OR FOR USE WITH TYPE II MANHOLE.
   - G. STANDARD LADDER STEPS SHALL BE PROVIDED IN ALL CATCH BASINS AND MANHOLES EXCEEDING 5 FEET IN DEPTH.
3. PRIOR TO SIDEWALK CONSTRUCTION, CONSTRUCT THE LOT DRAINAGE CONNECTIONS AND/OR STUB OUTS BEYOND SIDEWALK. STUB OUTS SHALL BE MARKED WITH A 2" X 4" AND LABELED "STORM". LOCATIONS OF THESE INSTALLATIONS SHALL BE PLACED ON THE AS-BUILT CONSTRUCTION PLANS AND SUBMITTED TO THE COUNTY.
4. DETENTION PONDS WITH SIDE SLOPES STEEPER THAN 3:1 SHALL REQUIRE A PERIMETER FENCE PER SNOHOMISH COUNTY CODE. SIDE SLOPE AVERAGING SHALL NOT BE ALLOWED.
5. STORM WATER RETENTION/DETENTION FACILITIES, STORM DRAINAGE PIPE AND CATCH BASINS SHALL BE FLUSHED AND CLEANED PRIOR TO SNOHOMISH COUNTY ACCEPTANCE.

RIPRAP SPECIFICATIONS

1. ALL RIPRAP PADS SPECIFIED AS 12" IN DEPTH ARE TO BE REASONABLY WELL GRADED WITH ROCK GRADATION AS FOLLOWS:
   MAXIMUM STONE SIZE 8" OR PASSING 8" SQUARE SIEVE 100%
   MEDIUM STONE SIZE 6" OR PASSING 6" SQUARE SIEVE 40-60%
   MINIMUM STONE SIZE 2" OR PASSING 2" SQUARE SIEVE 0-10%

RIPRAP SHALL BE IN ACCORDANCE WITH SECTION 9-13.1 OF THE WSDOT/APWA STANDARD SPECIFICATIONS.

2. ALL RIPRAP PADS SPECIFIED AS 24" IN DEPTH ARE TO BE REASONABLY WELL GRADED WITH ROCK GRADATION AS FOLLOWS:
   MAXIMUM STONE SIZE 24"(NOMINAL DIAMETER)
   MEDIUM STONE SIZE 16"
   MINIMUM STONE SIZE 4"

GENERAL NOTES

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH SNOHOMISH COUNTY ENGINEERING DESIGN AND DEVELOPMENT STANDARDS (E.D.D.S.), WASHINGTON STATE DEPARTMENT OF TRANSPORTATION/AMERICAN PUBLIC WORKS ASSOCIATION 2001 STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, AND THE 1989 WSDOT HYDRAULICS MANUAL.
2. ALL WORK PERTAINING TO THIS PROJECT SHALL BE SUBJECT TO INSPECTION BY THE COUNTY ENGINEER OR HIS DESIGNATED REPRESENTATIVE. PRIOR TO ANY SITE WORK, THE CONTRACTOR SHALL CONTACT THE COUNTY INSPECTOR AT (206) 388-3385 TO SCHEDULE A PRECONSTRUCTION CONFERENCE.
3. PRIOR TO ANY SITE DISTURBING ACTIVITY INCLUDING CLEARING, LOGGING OR GRADING, THE SITE CLEARING LIMITS AS SHOWN ON THESE PLANS SHALL BE LOCATED AND FIELD IDENTIFIED BY THE PROJECT SURVEYOR OR ENGINEER. THE PROJECT SURVEYOR OR ENGINEER'S NAME AND TELEPHONE NUMBER ARE GROUP FOUR, INC., (425) 775-4581.
4. THE DEVELOPER AND CONTRACTED CONSULTANT(S) ARE RESPONSIBLE FOR WATER QUALITY. A MONITORING PROGRAM SHALL BE ESTABLISHED BY THE CONTRACTED CONSULTANT(S). THE DEVELOPER SHALL PROVIDE THE COUNTY WITH THE NAME AND PHONE NUMBER OF SAID CONSULTANT(S) PRIOR TO CONSTRUCTION.
5. ENGINEERED AS-BUILTS SHALL BE REQUIRED PRIOR TO FINAL APPROVAL.
6. ANY REVISIONS TO THESE PLANS SHALL BE SUBMITTED TO SNOHOMISH COUNTY AND APPROVED PRIOR TO CONSTRUCTION.
7. ALL NATIVE GROWTH PROTECTION AREAS SHALL BE LEFT IN A SUBSTANTIALLY NATURAL STATE. NO CLEARING, GRADING, FILLING, BUILDING CONSTRUCTION OR PLACEMENT OF ROAD CONSTRUCTION OF ANY KIND SHALL OCCUR WITHIN THESE AREAS; PROVIDED THAT INDIVIDUAL LOT LINKS MAY BE FENCED BY PROPERTY OWNERS;AND PROVIDED THAT UNDERGROUND UTILITY LINES AND DRAINAGE DISCHARGE SWALES MAY CROSS SUCH AREAS UTILIZING THE SHORTEST ALIGNMENT POSSIBLE IF AND ONLY IF NO FEASIBLE ALIGNMENT IS AVAILABLE WHICH WOULD AVOID SUCH A CROSSING. REMOVAL OF VEGETATION BY THE PROPERTY OWNER SHALL BE LIMITED TO THAT WHICH IS HAZARDOUS. NO ADJUSTMENT TO THE BOUNDARY OF ANY SUCH AREA SHALL OCCUR WITHOUT FURTHER ENVIRONMENTAL REVIEW AND AMENDMENT OF THE PLAT APPROVED BY SNOHOMISH COUNTY.
8. PRIOR TO INITIATION OF SITE WORK, HIGHLY VISIBLE MARKERS SUCH AS BRIGHT ORANGE BARRIER FENCING OF FLAGGING SHALL BE USED TO IDENTIFY NGPA BOUNDARIES. PRIOR TO RECORDING, ALL NGPA'S SHALL BE CLEARLY AND PERMANENTLY MARKED ON THE PROJECT SITE. SIGNS SHALL BE PLACED NO GREATER THAN 100 FEET APART AROUND THE PERIMETER OF THE NGPA. THE DESIGN FOR THE NGPA SIGN SHALL BE SUBMITTED TO WATER RESOURCES FOR REVIEW AND APPROVAL. NO CLEARING OF ANY VEGETATION OR GRADING IS TO BE ALLOWED WITHIN THE NGPA AREAS.

SURVEY MONUMENTATION

1. SURVEY MONUMENTS SHALL BE INSTALLED IN ACCORDANCE WITH SNOHOMISH COUNTY ENGINEERING DESIGN AND DEVELOPMENT STANDARDS (E.D.D.S.), CHAPTER 6-03, DETAIL 6-020, AND POL- 5200.

PIPE SPECIFICATIONS

PLACEMENT REQUIREMENTS FOR CULVERTS AND STORM SEWER INSTALLATION SHALL BE AS INDICATED IN THE WSDOT/APWA SPECIFICATIONS SECTIONS 7-02 AND 7.04, RESPECTIVELY, AND AASHTO SPECIFICATIONS. PIPE MATERIALS SHALL COMPLY WITH SECTION 9-05 OF THE WSDOT/APWA SPECIFICATIONS WITH THE FOLLOWING CLARIFICATIONS:

1. DOUBLE WALLED (SMOOTH INTERIOR) CORRUGATED POLYETHYLENE PIPE, MEETING THE REQUIREMENTS OF AASHTO M 252 IN 8 INCH SIZE AND AASHTO M 294S IN SIZES 12" THROUGH 36", IS AN ACCEPTABLE ALTERNATIVE FOR SCHEDULE A CULVERT PIPE, AS SHOWN ON WSDOT/APWA STANDARD PLAN B-17 AND FOR STORM SEWERS IN ACCORDANCE WITH THESE STANDARDS. THE ENDS OF THE PIPE SHALL BE BEVELED TO MATCH THE SLOPE. CORRUGATED POLYETHYLENE PIPE SHALL NOT BE USED WHEN BEVELED SLOPES ARE FLATTER THAN 4:1. FOR ANY PIPE LENGTH SECTION THAT IS TO BE BEVELED ON THE END, THE MINIMUM LENGTH OF THE UNBEVELED PORTION OF THE PIPE SHALL BE 6 FEET. THE PIPE SHALL BE INSTALLED IN A DESIGN A TRENCH AS SHOWN ON STANDARD DRAWING 9-210. FOR BURIAL DEPTHS EXCEEDING 15 FEET, THE PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THESE STANDARDS.
2. IN PRIVATE DEVELOPMENTS, THE USE OF NON-SMOOTH INTERIOR CORRUGATED POLYETHYLENE (AASHTO M-294, TYPE "C") IS ALLOWED, EXCEPT WHERE THESE INSTALLATIONS ARE OR CAN REASONABLY BE EXPECTED TO BECOME PART OF THE COUNTY MAINTAINED DRAINAGE SYSTEM.
3. GALVANIZED CORRUGATED STEEL PIPE SHALL HAVE ASPHALT COATING TREATMENT 1 AS SPECIFIED IN WSDOT/APWA SPECIFICATION SECTION 9-05.4(3). ALUMINIZED STEEL PIPE MAY BE USED WITHOUT TREATMENT 1.
4. PWRIB SEAMLESS GRAVITY SEWER PIPE AND FITTINGS CONFORMING TO ASTM F794 AND UNI-B-9 FOR 8"-15" DIAMETER; ULTRA-RIB PVC STORM SEWER PIPE CONFORMING TO ASTM F794 & UNI-B-9 FOR 8"-24" DIAMETER; AND ULTRA-CORR PVC SEWER AND DRAIN PIPE CONFORMING TO ASTM F949 AND ASTM F794.

MATERIALS ALLOWED FOR STORM PIPE SYSTEMS LABELED AS "SD":

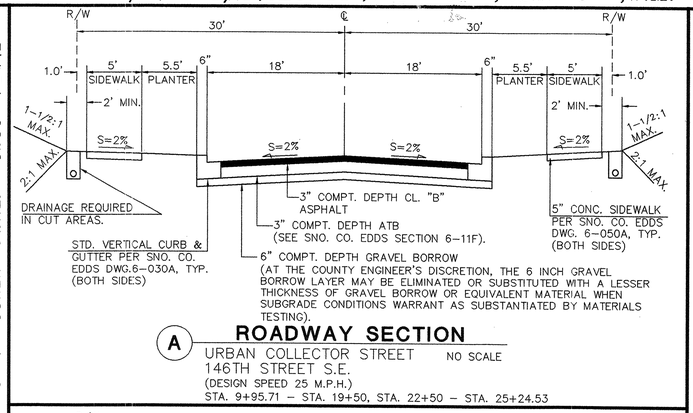
- PLAIN CONCRETE.
- DUCTILE IRON (WATER SUPPLY, CLASS 50 OR 52).
- REINFORCED CONCRETE PIPE.
- GALVANIZED CORRUGATED IRON OR STEEL PIPE (SEE NOTE 3).
- GALVANIZED STEEL SPIRAL RIB PIPE, TREATMENT 1 THROUGH 6.
- CORRUGATED ALUMINUM PIPE.
- ALUMINUM SPIRAL RIB PIPE.
- ALUMINIZED TYPE 2 CORRUGATED STEEL (MEETS AASHTO TREATMENT M274 AND M56).
- CORRUGATED HIGH DENSITY POLYETHYLENE PIPE (CPEP)
- SMOOTH INTERIOR (SEE NOTE 1).
- CORRUGATED HIGH DENSITY POLYETHYLENE PIPE (CPEP)
- SINGLE WALL, FULLY CORRUGATED (SEE NOTE 2).
- POLYVINYL CHLORIDE (PVC) SEWER PIPE.
- HIGH DENSITY POLYETHYLENE PIPE (HDPP).
- PVC SMOOTH INTERIOR WITH CORRUGATED RIB EXTERIOR (SEE NOTE 4).

MATERIALS ALLOWED FOR STORM PIPE SYSTEMS LABELED AS "CP":

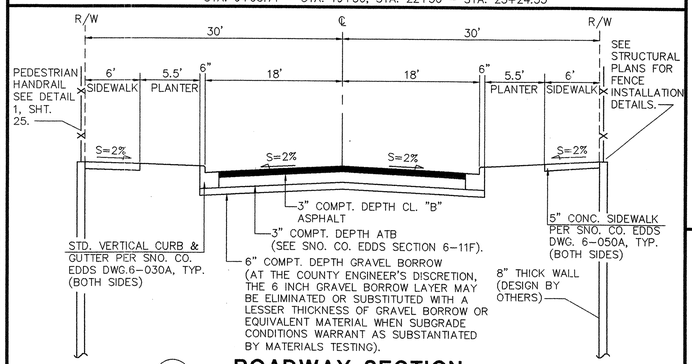
- PLAIN CONCRETE. -DUCTILE IRON (WATER SUPPLY, CLASS 50 OR 52).
- REINFORCED CONCRETE PIPE.
- CORRUGATED HIGH DENSITY POLYETHYLENE PIPE (CPEP)
- SMOOTH INTERIOR (SEE NOTE 1).
- POLYVINYL CHLORIDE (PVC) SEWER PIPE.
- HIGH DENSITY POLYETHYLENE PIPE (HDPP).
- PVC SMOOTH INTERIOR WITH CORRUGATED RIB EXTERIOR (SEE NOTE 4).

MATERIALS ALLOWED FOR STORM PIPE SYSTEMS LABELED AS "RCP":

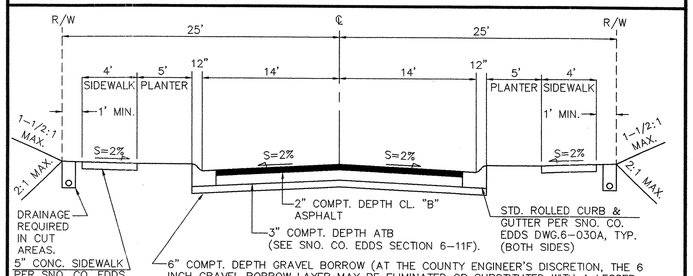
- REINFORCED CONCRETE PIPE.
- DUCTILE IRON (WATER SUPPLY, CLASS 50 OR 52).



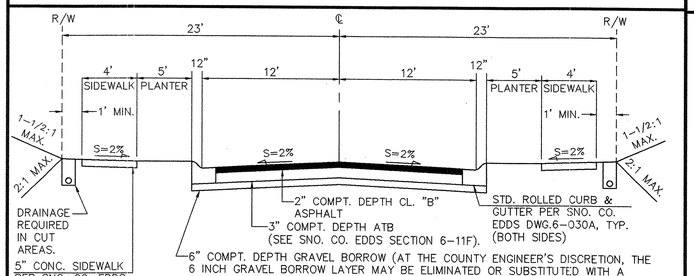
A ROADWAY SECTION — NO SCALE
URBAN COLLECTOR STREET
146TH STREET S.E.
(DESIGN SPEED 25 M.P.H.)
STA. 9+95.71 – STA. 19+50, STA. 22+50 – STA. 25+24.53



B ROADWAY SECTION — NO SCALE
URBAN COLLECTOR STREET
146TH STREET S.E.
(DESIGN SPEED 25 M.P.H.)
STA. 19+50 – STA. 22+50



C ROADWAY SECTION — NO SCALE
URBAN SUB-COLLECTOR STREET
35TH DRIVE S.E. 147TH STREET S.E.
147TH PLACE S.E. 36TH AVENUE S.E.
37TH AVENUE S.E.
(DESIGN SPEED 20 M.P.H.)



D ROADWAY SECTION — NO SCALE
URBAN ACCESS STREET
38TH DRIVE S.E.
(DESIGN SPEED 20 M.P.H.)

DIVISION 1

LOT NO.	TOTAL AREA (S.F.)	ASSUMED IMPERVIOUS SURFACES (S.F.)	TRIBUTARY TO POND
1	4,999	2,999	TRACT 991
2	4,500	2,700	TRACT 991
3	4,999	2,999	TRACT 991
4	4,500	2,700	TRACT 991
5	4,999	2,999	TRACT 991
6	4,500	2,700	TRACT 991
7	4,999	2,999	TRACT 991
8	4,500	2,700	TRACT 991
9	4,999	2,999	TRACT 991
10	4,640	2,784	TRACT 991
11	4,750	2,850	TRACT 991
12	3,800	2,280	TRACT 991
13	4,275	2,565	TRACT 991
14	4,275	2,565	TRACT 991
15	4,275	2,565	TRACT 991
16	4,750	2,850	TRACT 991
17	3,800	2,280	TRACT 991
18	4,275	2,565	TRACT 991
19	4,559	2,735	TRACT 991
20	5,329	3,197	TRACT 991
21	4,275	2,565	TRACT 991
22	4,750	2,850	TRACT 991
23	4,750	2,850	TRACT 991
24	4,750	2,850	TRACT 991
25	4,750	2,850	TRACT 991
26	4,750	2,850	TRACT 991
27	4,750	2,850	TRACT 991
28	4,648	2,789	TRACT 991
29	4,690	2,814	TRACT 991
30	4,390	2,634	TRACT 991
31	4,275	2,565	TRACT 991
32	4,275	2,565	TRACT 991
33	4,227	2,536	TRACT 991
34	4,275	2,565	TRACT 991
35	3,800	2,280	TRACT 991
36	3,862	2,317	TRACT 991
37	4,947	2,968	TRACT 991
38	5,329	3,197	TRACT 991
39	8,500	6,082	TRACT 991
40	6,412	3,847	TRACT 991
41	5,367	3,220	TRACT 991
42	4,125	2,475	TRACT 991
43	4,454	2,672	TRACT 991
44	5,535	3,321	TRACT 991
45	3,836	2,302	TRACT 991
46	4,276	2,566	TRACT 991
47	4,751	2,851	TRACT 991
48	3,801	2,281	TRACT 991
49	4,276	2,566	TRACT 991
50	5,835	3,941	TRACT 991
51	4,256	2,674	TRACT 991

DIVISION 2

LOT NO.	TOTAL AREA (S.F.)	ASSUMED IMPERVIOUS SURFACES (S.F.)	TRIBUTARY TO VAULT
1	4,500	2,700	TRACT 991
2	4,999	2,999	TRACT 991
3	4,500	2,700	TRACT 991
4	5,018	3,011	TRACT 991
5	5,371	3,223	TRACT 991
6	5,837	3,502	TRACT 991
7	6,138	4,114	TRACT 991
8	7,926	5,412	TRACT 991
9	4,283	2,794	TRACT 991
10	4,754	2,852	TRACT 991
11	3,801	2,281	TRACT 991
12	4,276	2,566	TRACT 991
13	4,753	2,852	TRACT 991
14	4,276	2,566	TRACT 991
15	4,752	2,851	TRACT 991
16	4,277	2,566	TRACT 991
17	4,753	2,852	TRACT 991
18	4,278	2,567	TRACT 991
19	3,825	2,295	TRACT 991
20	4,162	2,497	TRACT 991
21	6,193	4,285	TRACT 991
22	5,069	3,317	TRACT 991
23	6,018	3,830	TRACT 991
24	5,451	3,871	TRACT 991
25	4,933	2,960	TRACT 991
26	4,521	2,713	TRACT 991
27	3,840	2,304	TRACT 991
28	4,765	2,859	TRACT 991
29	6,334	4,022	TRACT 991
30	5,989	3,832	TRACT 991
31	7,668	5,116	TRACT 991
32	4,871	2,923	TRACT 991
33	5,000	3,000	TRACT 991
34	5,000	3,000	TRACT 991
35	4,750	2,850	TRACT 991
36	4,737	2,842	TRACT 991
37	3,790	2,274	TRACT 991
38	4,263	2,558	TRACT 991
39	4,263	2,558	TRACT 991
40	3,789	2,273	TRACT 991
41	4,263	2,558	TRACT 991
42	4,263	2,558	TRACT 991
43	4,736	2,842	TRACT 991
44	4,262	2,557	TRACT 991
45	4,606	2,764	TRACT 991
46	4,764	2,858	TRACT 991
47	4,274	2,564	TRACT 991
48	3,799	2,279	TRACT 991
49	4,274	2,564	TRACT 991
50	4,274	2,564	TRACT 991
51	3,799	2,279	TRACT 991
52	4,273	2,564	TRACT 991
53	4,273	2,564	TRACT 991
54	3,798	2,279	TRACT 991
55	4,747	2,848	TRACT 991
56	4,818	2,891	TRACT 991

DIVISION 3

LOT NO.	TOTAL AREA (S.F.)	ASSUMED IMPERVIOUS SURFACES (S.F.)	TRIBUTARY TO VAULT
1	6,316	3,790	TRACT 995
2	4,990	2,994	TRACT 995
3	5,000	3,000	TRACT 995
4	5,000	3,000	TRACT 995
5	6,283	3,770	TRACT 995
6	5,600	3,360	TRACT 995
7	4,321	2,953	TRACT 995
8	4,174	2,504	TRACT 995
9	3,939	2,363	TRACT 995
10	6,404	3,842	TRACT 995
11	5,404	6,300	TRACT 995
12	4,407	2,644	TRACT 995
13	3,937	2,362	TRACT 995
14	4,747	2,848	TRACT 995
15	4,277	2,566	TRACT 995
16	4,780	2,868	TRACT 995
17	4,431	2,659	TRACT 995
18	5,002	3,001	TRACT 995
19	4,502	2,701	TRACT 995
20	4,502	2,701	TRACT 995
21	4,888	2,921	TRACT 995
22	4,367	2,620	TRACT 995
23	4,501	2,701	TRACT 995
24	4,001	2,401	TRACT 995
25	4,517	2,710	TRACT 995
26	4,802	2,881	TRACT 995
27	5,171	3,171	TRACT 995
28	5,667	3,774	TRACT 995
29	7,722	5,237	TRACT 995
30	4,622	2,773	TRACT 995
31	3,678	2,207	TRACT 995
32	4,092	2,455	TRACT 995
33	3,960	2,376	TRACT 995
34	7,389	4,433	TRACT 995
35	4,208	2,525	TRACT 995
36	4,295	2,577	TRACT 995
37	5,052	3,031	TRACT 995
38	5,537	3,322	TRACT 995
39	5,000	3,000	TRACT 995
40	5,000	3,000	TRACT 995
41	5,780	3,468	TRACT 995
42	4,691	2,815	TRACT 995

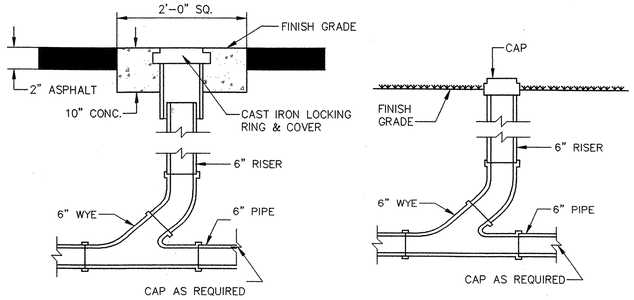
DIVISION 1

LOT NO.	CLEANOUT INVERT	CLEANOUT INVERT (AS-BUILT)
1	406.0	406.66(E) 407.59(W)
2	406.4	407.78
3	406.9	N/A
4	407.4	408.54
5	407.9	408.52(E) 410.01(W)
6	408.1	408.42(E) 409.97(W)
7	408.6	410.49
8	409.1	410.77
9	409.6	411.42
10	410.0	410.43(N) 406.44(S)
11	409.5	409.97
12	409.1	409.39
13	408.6	409.26
14	408.4	408.65(S) 408.23(W) 408.21(E)
15	407.9	407.67
16	407.4	407.43
17	407.0	407.30
18	406.5	407.14
19	406.3	406.67
20	401.3	400.95(E) 402.13(W)
21	401.6	402.21
22	402.1	402.22(E) 401.85(W)
23	403.8	403.78
24	404.1	404.60
25	404.6	404.63(E) 406.00(W)
26	404.2	405.43(E) 406.28(W)
27	403.7	405.36
28	403.4	403.67
29	402.9	402.37(S) 403.39(N)
30	403.2	404.37
31	403.7	404.68
32	404.2	405.74(W) 405.73(E)
33	399.5	401.00(W) 400.63(E)
34	400.1	402.15
35	400.6	401.66(W) 401.26(E)
36	398.4	400.95(W) 402.21(E)
37	399.0	400.94
38	399.5	401.07
39	399.7	400.20
40	399.9	401.22(S) 401.21(N)
41	400.6	401.28(S) 401.54(N)
42	400.8	402.26
43	401.2	403.53
44	401.7	402.39(S) 403.79(W)
45	402.0	403.34(E) 403.24(W)
46	402.1	404.01
47	402.6	405.13
48	403.1	404.71(E) 405.29(W) 405.71(N)
49	404.6	406.80
50	405.1	408.29
51	405.3	407.76(S) 408.99(N)

DIVISION 2

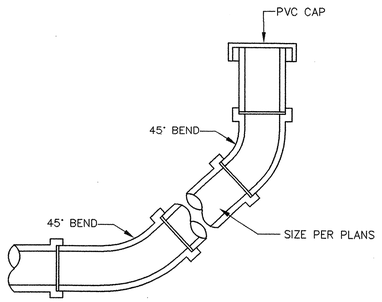
LOT NO.	CLEANOUT INVERT	CLEANOUT INVERT (AS-BUILT)
1	410.8	412.55
2	410.9	411.54
3	411.4	411.79
4	411.9	413.87
5	412.4	413.90
6	410.9	413.70
7	410.7	412.60
8	410.5	412.91
9	410.3	412.24
10	410.0	410.74
11	408.6	410.80
12	407.5	409.30
13	406.1	408.40
14	405.3	407.72
15	405.0	406.58
16	403.1	404.08
17	402.6	403.05
18	402.0	402.38
19	401.8	401.85
20	401.9	402.29
21	401.7	401.10
22	401.5	401.06
23	401.6	401.18
24	401.8	403.06
25	402.3	403.47
26	401.5	403.02
27	401.1	402.86
28	400.7	401.92
29	400.6	401.90
30	400.9	402.55
31	401.1	400.77
32	401.1	401.05
33	401.3	400.94
34	401.8	402.55(E) 402.22(W)
35	401.8	402.14
36	401.7	401.42
37	402.2	402.49
38	402.6	403.05
39	403.1	403.73
40	403.6	404.20
41	403.9	404.48
42	404.8	406.18
43	405.7	406.95
44	406.7	408.53
45	409.7	409.71
46	410.6	411.65
47	410.5	411.14
48	408.5	409.68
49	407.4	408.86
50	406.2	406.64
51	405.5	406.06
52	403.3	404.11(N) 404.

SW1/4, SW1/4,SEC. 33 ,TWP. 28 ,RGE. 5 ,W.M.



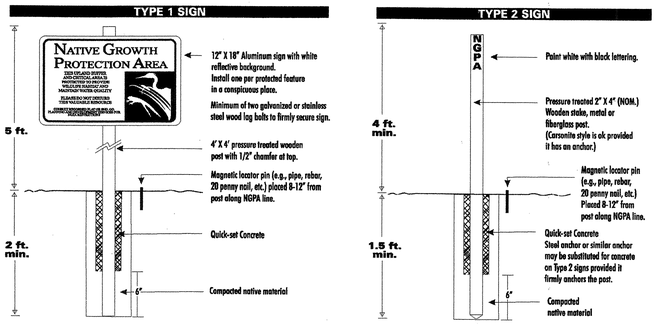
PAVED AREAS **UNPAVED AREAS**

1 STORM CLEANOUT DETAIL
NO SCALE



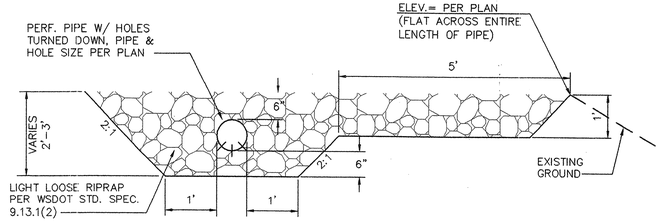
2 LEVEL SPREADER CLEANOUT DETAIL
NO SCALE

Native Growth Protection Area Sign Installation Guidelines

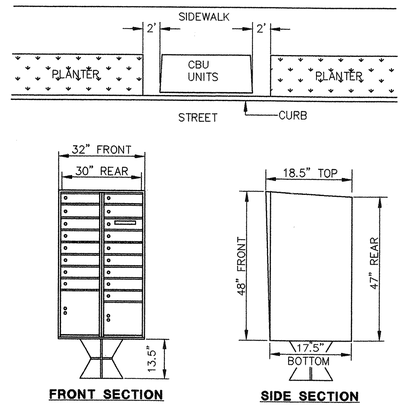


NOTES:
1. NGPA signs shall be placed no greater than 100 feet apart around the perimeter of the Native Growth Protection Area. Minimum placement shall include one Type 1 sign per wetland, and at least one Type 1 sign shall be placed in any lot that borders the Native Growth Protection Area, unless otherwise approved by the County biologist.
2. Sign placement shall be subject to the approval of Snohomish County. Alternative sign designs may be submitted to Snohomish County for approval.
3. Per SCC 32.10.240(8), all signs must be secure and permanent.

3 NATIVE GROWTH PROTECTION AREA SIGN DETAILS
NO SCALE



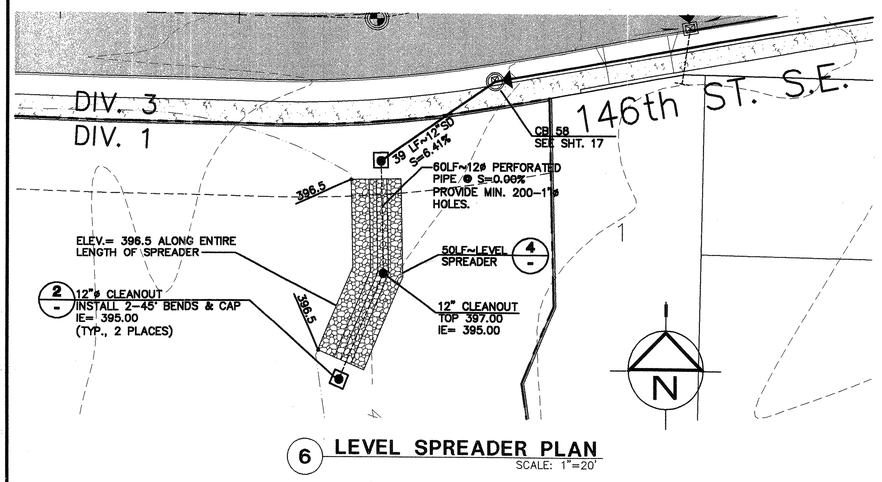
4 LEVEL SPREADER DETAIL
NO SCALE



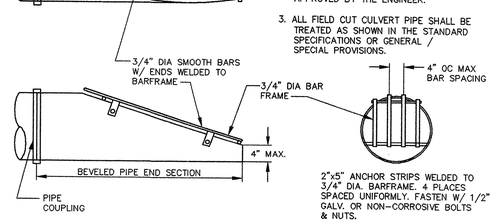
CLUSTER BOX UNIT DETAIL

NOTES:
1. MAILBOXES MUST BE POSTMASTER APPROVED WITH A UNIFORM BOX STYLE AND METHOD OF ADDRESS IDENTIFICATION.
2. LOCATION OF MAILBOXES ARE SUBJECT TO APPROVAL BY THE DIRECTOR FOR ACCESS AND SIGHT DISTANCE REQUIREMENTS.
3. NEIGHBORHOOD DELIVERY AND COLLECTION BOX UNITS (CBU) INCLUDING PEDESTAL, BASE PLATE, BREAKAWAY BOLTS AND ASSOCIATED CONCRETE SLAB SHALL BE INSTALLED BY THE U.S. POSTAL SERVICE.
4. MAILBOX SHALL BE AMERICAN LOCKER GROUP TYPE 3 CLUSTER BOX UNIT.

5 NDCBU LOCKING MAILBOXES
NO SCALE

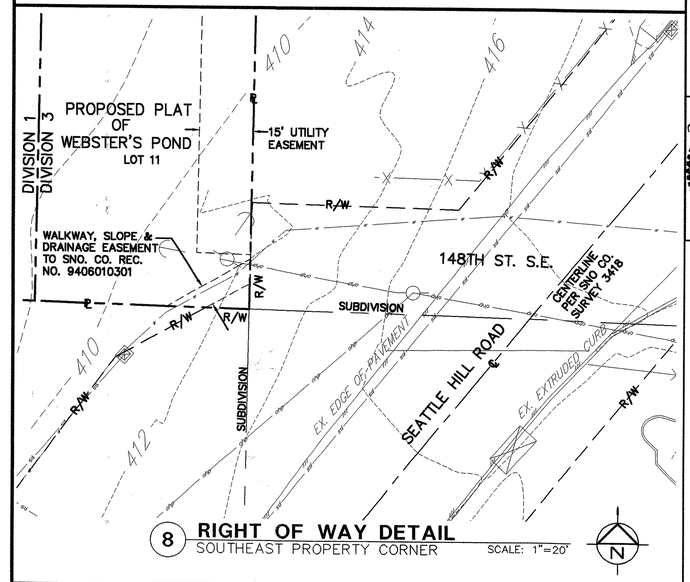


6 LEVEL SPREADER PLAN
SCALE: 1"=20'



NOTES:
1. ALL STEEL PARTS MUST BE GALVANIZED & ASPHALT COATED (TREATMENT 1 OR BETTER)
2. THE CULVERT ENDS SHALL BE BEVELED TO MATCH THE SIDE SLOPE. FIELD CUT OF CULVERT ENDS IS PERMITTED WHEN APPROVED BY THE ENGINEER.
3. ALL FIELD CUT CULVERT PIPE SHALL BE TREATED AS SHOWN IN THE STANDARD SPECIFICATIONS OR GENERAL / SPECIAL PROVISIONS.

7 TRASH RACK DETAIL
NO SCALE



8 RIGHT OF WAY DETAIL
SOUTHEAST PROPERTY CORNER SCALE: 1"=20'

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____ 10/17/2000
R/W PERMIT NO. 2000747

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 * (206)362-4244 * FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

NO. REVISION DATE BY

FILENAME: P:\7-JOBS\99-8040\dwg\Sht\SHT24.dwg
PLOTTED: 10/17/2000 @ 08:37:34 AM
LAYOUT/TAB: BASE/SHEET 24 USER: MIKEH

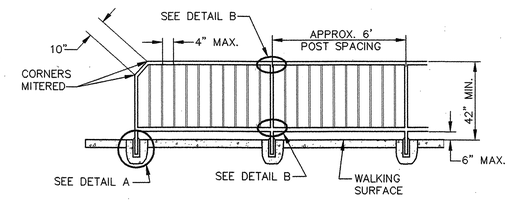
CARMEN O. VANIER — STATE OF WASHINGTON — 13788 — REGISTERED PROFESSIONAL ENGINEER — 2000
10-11
EXPIRES 11-8-01

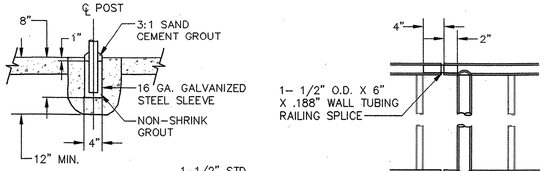
VILLAGE AT WEBSTER'S POND
ROADWAY & DRAINAGE
NOTES & DETAILS
SNOHOMISH COUNTY WASHINGTON

SHT 24 OF 26

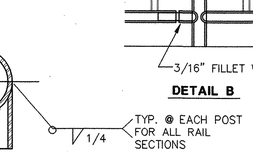
JOB NO: 99-8040

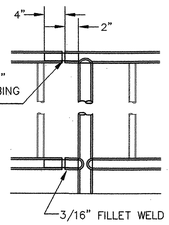
HDEV-2396





DETAIL A





DETAIL B

NOTE:
MATERIAL FOR PEDESTRIAN HANDRAIL SHALL BE STEEL (ASTM A120) OR ALUMINUM (ASTM B241 OR B429 ALLOY 6061-T6) AS DIRECTED BY THE OWNER. MANUFACTURING OF THE HANDRAIL SHALL CONFORM TO STANDARD DRAWING 6-172.

PEDESTRIAN RAIL (GALV. STEEL)

GALVANIZED PEDESTRIAN RAIL SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THESE SPECIAL PROVISIONS AND STANDARD DRAWING 6-170.

GALVANIZED STEEL PEDESTRIAN RAIL SHALL CONFORM TO ASTM DESIGNATION A120. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE AWS D1.1-72. AFTER FABRICATION EACH SECTION OF RAILING SHALL BE HOT-DIPPED GALVANIZED WITH A MINIMUM ZINC COATING OF 2 OUNCES PER SQUARE FOOT. ALL BURRS AND SHARP EDGES SHALL BE REMOVED PRIOR TO GALVANIZING.

FIELD WELDS SHALL BE GALVANIZED WITH "GALVALLOY" OR APPROVED EQUAL. PAINTING OF WELDS WILL NOT BE PERMITTED.

HORIZONTAL RAILS VERTICAL SUPPORT POSTS SHALL BE 2" DIAMETER AND BALUSTERS SHALL BE 1" DIAMETER STANDARD WEIGHT GALVANIZED STEEL PIPE. RAILS, POSTS, & BALUSTERS SHALL BE MACHINE CUT TO PROVIDE A UNIFORM LENGTH PRIOR TO ASSEMBLY.

RAILING SHALL BE ERECTED AND ADJUSTED, IF NECESSARY, TO ASSURE A CONTINUOUS LINE AND GRADE. FINISHED HEIGHT IS TO BE 42" ABOVE PEDESTRIAN SURFACE. EXPANSION JOINTS SHALL BE PROVIDED AT INTERVALS SHOWN ON THE STANDARD DRAWING.

PEDESTRIAN RAIL (ALUMINUM)

ALUMINUM PEDESTRIAN RAIL SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THESE SPECIAL PROVISIONS AND STANDARD DRAWING 6-170.

ALUMINUM PEDESTRIAN RAIL SHALL BE NATURAL ALUMINUM COLOR.

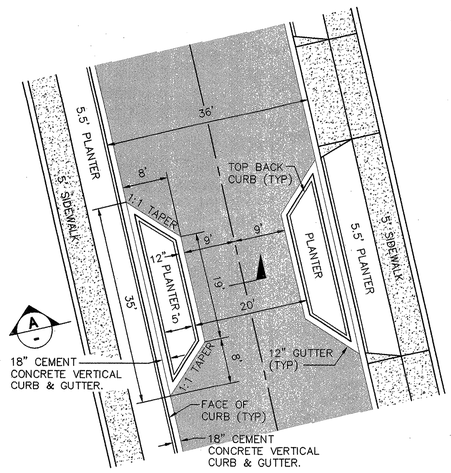
IF ANODIZATION IS SPECIFIED, ALL ALUMINUM PARTS SHALL BE GIVEN A CLEAR ANODIC COATING AT LEAST 0.0006" THICK AND SHALL BE SEALED TO MEET THE REQUIREMENTS OF ASTM B136 AND SHALL HAVE A UNIFORM FINISH.

WELDING OF ALUMINUM SHALL BE IN ACCORDANCE WITH THE "STRUCTURAL WELDING CODE- ALUMINUM, AWS D 1.2".

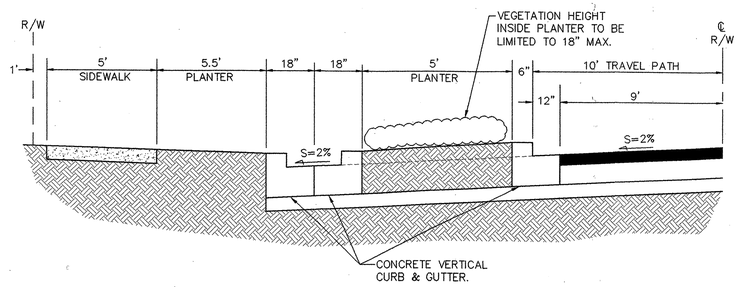
ALL MATERIALS USED IN THE FABRICATION OF ALUMINUM PEDESTRIAN RAIL SHALL MEET THE REQUIREMENTS OF ASTM B241 OR B429 ALLOY 6061-T6 SCHEDULE 40 (STD. PIPE).

HORIZONTAL RAILS AND VERTICAL SUPPORT POSTS SHALL BE 1.9" O.D. AND BALUSTERS SHALL BE 1.05" O.D. STANDARD WEIGHT ALUMINUM PIPE. RAILS, POSTS & BALUSTERS SHALL BE MACHINE CUT TO PROVIDED A UNIFORM LENGTH PRIOR TO ASSEMBLY.

(1) PEDESTRIAN HANDRAIL DETAIL
EDDS 6-170 NO SCALE



PLAN



SECTION A

(2) TRAFFIC CALMING DEVICE PLAN AND SECTION
NO SCALE

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

PFN#: 98-108094

"AS-BUILT"
WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS
BY: _____ PROJECT ENGINEER/SURVEYOR DATE
BY: _____ PROJECT DEVELOPER DATE

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
BY _____
R/W PERMIT NO. 01107947

NO. | REVISION | DATE | BY

FILENAME = J:\99-8040\pw\Std (2).dgn
PLOTTED = NOV 19, 2001 07:59:58

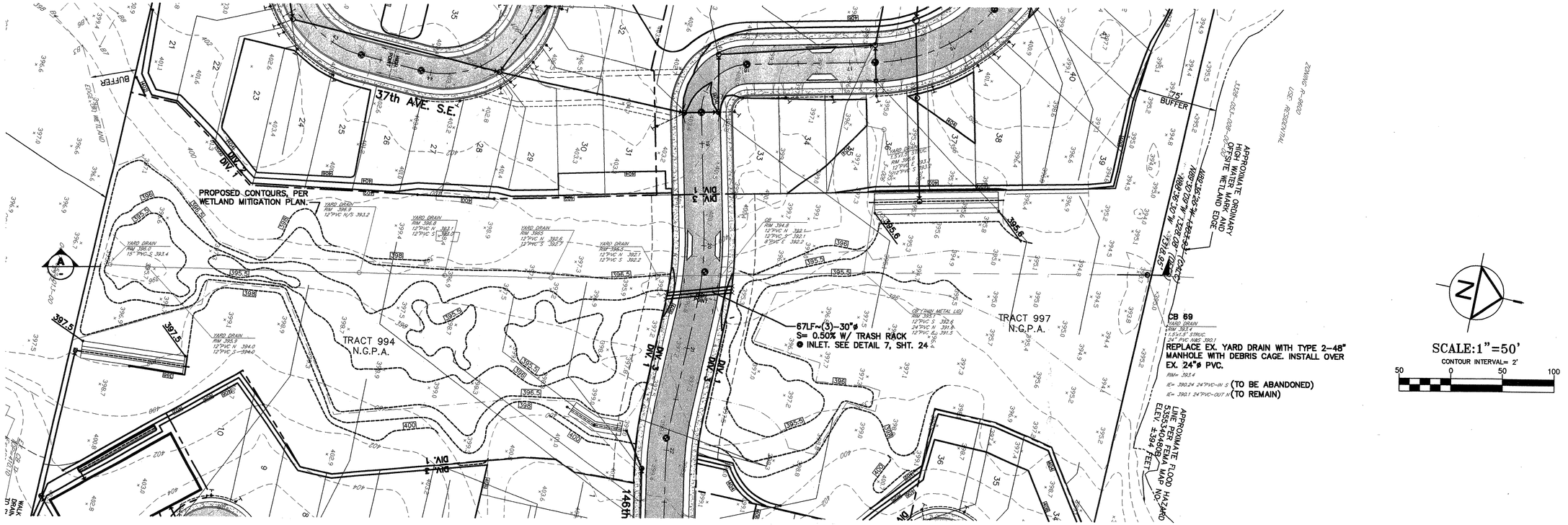
CANNON VANIER 20001 STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER
EXPIRES: 3-14-2003

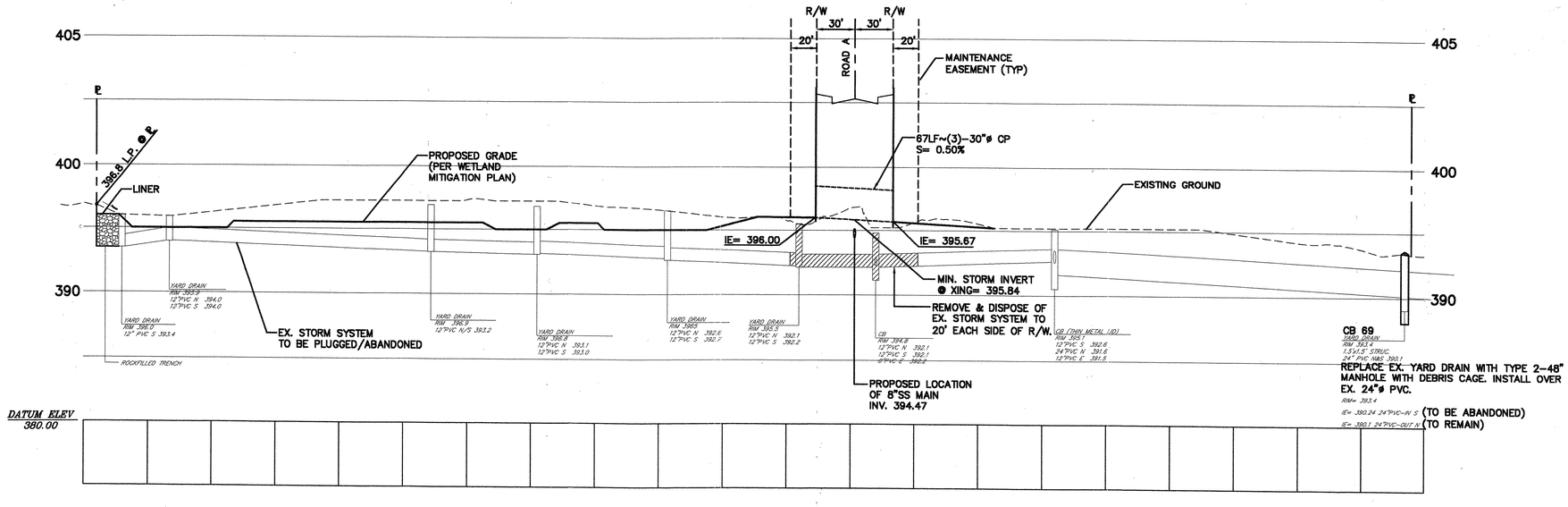
GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
DRAWN BY: CHECKED BY: APPROVED BY:
DATE: DATE: DATE:

VILLAGE AT WEBSTER'S POND
ROADWAY & DRAINAGE NOTES & DETAILS
SNOHOMISH COUNTY WASHINGTON

SHT 25 OF 26
JOB NO: 99-8040

HDEV-2397





WETLAND CROSSING

SCALE: 1"= 50' (HORIZ.)
1"= 5' (VERT.)

NOTE:

AS REQUIRED BY THE SNOHOMISH COUNTY PDS STAFF BIOLOGIST, THE UNAUTHORIZED EXISTING STORM SYSTEM SHOWN ON THIS PLAN SHALL BE PLUGGED USING BENTONITE PLUGS, AND ABANDONED IN PLACE.

"AS-BUILT"

WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS

BY: _____ DATE
PROJECT ENGINEER/SURVEYOR

BY: _____ DATE
PROJECT DEVELOPER

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
(OR GRADING IN THE CASE OF GRADING PERMITS)
BY _____
R/W PERMIT NO. 01107947

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

NO. | REVISION | DATE | BY

FILENAME: P:\PROJECTS\99-8040\DWG\PLAT\WETLAND PLAN SHT 26.dwg
LAST MODIFIED: Thursday, December 19, 2002 - 10:50am by Mark
LAND/LAYOUT: WETLAND PLAN SHT 26

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING | ENGINEERING | PLANNING | MANAGEMENT
DRAWN BY: | CHECKED BY: | APPROVED BY:
DATE: | DATE: | DATE:

EXPIRES 3-18-04

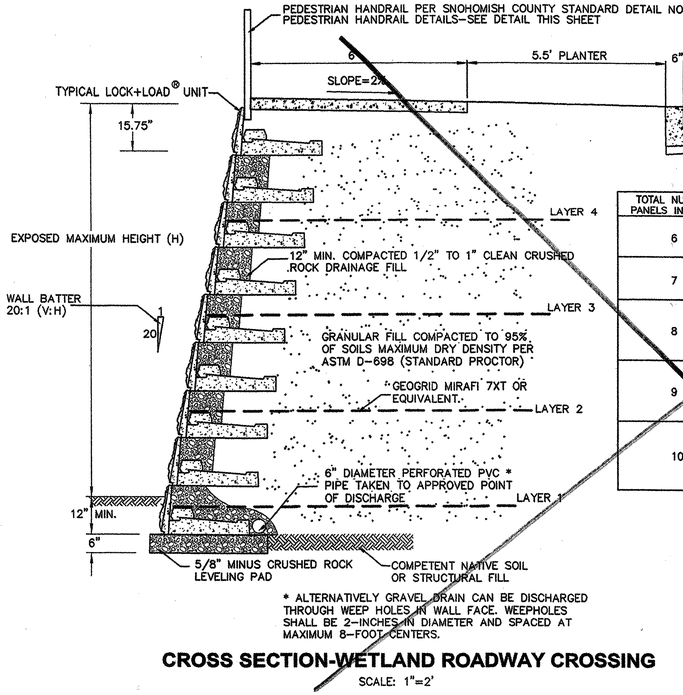
VILLAGE AT WEBSTER'S POND
WETLAND PLAN & SECTION

SNOHOMISH COUNTY WASHINGTON

SHT 26 OF 26

JOB NO: 99-8040

HDEV-2398



* ALTERNATIVELY GRAVEL DRAIN CAN BE DISCHARGED THROUGH WEEP HOLES IN WALL FACE. WEEPHOLES SHALL BE 2-INCHES IN DIAMETER AND SPACED AT MAXIMUM 8-FOOT CENTERS.

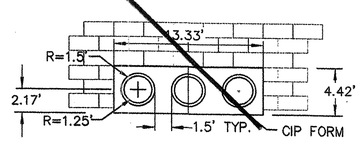
CROSS SECTION-WETLAND ROADWAY CROSSING

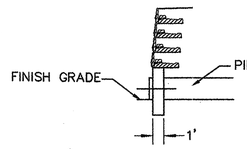
SCALE: 1"=2'

PROJECT LOCATION:
NORTHEAST 1/4 OF SECTION 5, TOWNSHIP 27 NORTH RANGE 5 EAST;
SOUTHEAST 1/4 OF SECTION 32, TOWNSHIP 28 NORTH RANGE 5 EAST;
NORTHWEST 1/4 OF SECTION 4, TOWNSHIP 27 NORTH RANGE 5 EAST;
SOUTHWEST 1/4 OF SECTION 33, TOWNSHIP 28 NORTH RANGE 5 EAST.

TOTAL NUMBER OF PANELS IN WALL FACE	EXPOSED WALL HEIGHT (H)	LAYER NO.	REINFORCEMENT LENGTH (L) (USE MIRAFI 7XT OR EQUAL)	HEIGHT
6	6.87	1 2 3	5.0 5.0 5.0	0.66 3.29 5.92
7	8.19	1 2 3	6.5 6.5 6.5	0.66 3.29 5.92
8	9.50	1 2 3 4	7.5 7.5 7.5 7.5	0.66 3.29 5.92 8.55
9	10.81	1 2 3 4	8.5 8.5 8.5 8.5	0.66 3.29 5.92 8.55
10	12.10	1 2 3 4 5	9.5 9.5 9.5 9.5 9.5	0.66 3.29 5.92 8.55 11.18

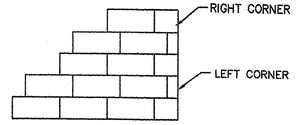
NOTE: GEOGRID ELEVATION TOLERANCE ± .5'
ALL DIMENSIONS ARE IN FEET





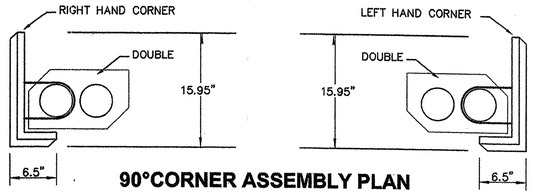
TYPICAL PIPE CROSSING DETAIL

DETAIL PROVIDED BY LOCK+LOAD® RETAINING WALL SYSTEMS



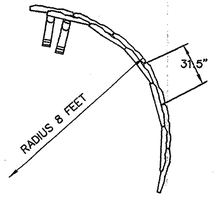
90° CORNER-ELEVATION

NOT TO SCALE



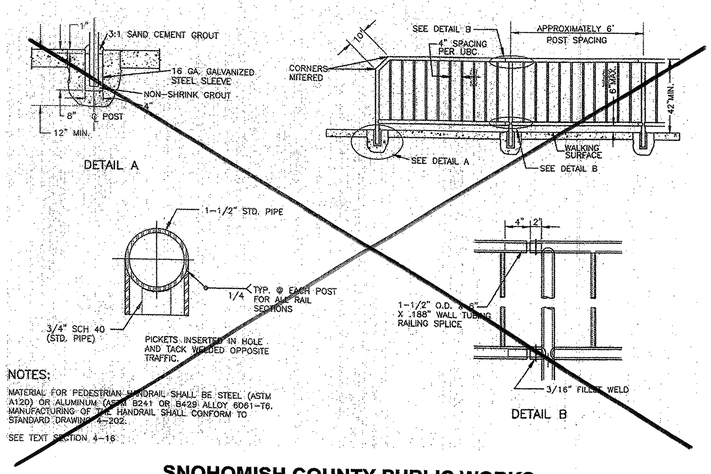
90°CORNER ASSEMBLY PLAN

SCALE: 1"=1'



RADIUS CORNER DETAIL PLAN

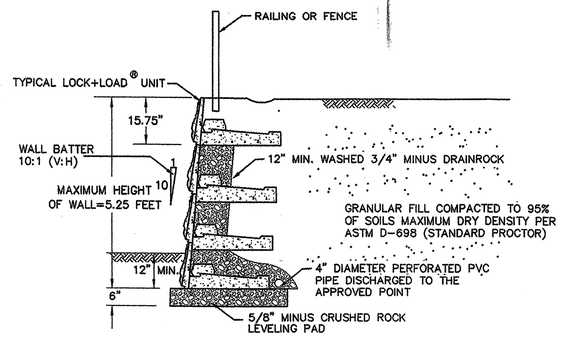
NOT TO SCALE



SNOHOMISH COUNTY PUBLIC WORKS 4-200 PEDESTRIAN HANDRAIL DETAILS

GENERAL NOTES

1. REFER TO CIVIL GRADING PLANS FOR WALL ALIGNMENTS AND ELEVATIONS.
2. ALL GRADING AND EARTHWORK REQUIRED FOR WALL CONSTRUCTION SHALL BE COMPLETED PER:
   a) SUPPLEMENTAL GEOTECHNICAL ENGINEERING STUDY, VILLAGE AT WEBSTER'S POND, T-3772-1, PREPARED BY TERRA ASSOCIATES, INC., DATED NOVEMBER 9, 2000.
   b) PRELIMINARY GEOTECHNICAL REPORT, VERBEEK PROPERTY, PROJECT NO. T-3772-1, PREPARED BY TERRA ASSOCIATES, INC. DATED SEPTEMBER 15, 1998.
3. REFER TO REINFORCING SCHEDULE FOR GEOGRID LENGTHS. AND ELEVATIONS.
4. GEOGRID ELEVATION MEASURED FROM TOP OF CRUSHED ROCK LEVELING PAD.
5. GEOGRID LENGTH (L) MEASURED FROM BACK OF BLOCK UNIT.
6. GEOGRID SHALL BE INSTALLED BEHIND WALL WITH MACHINE DIRECTION (STRONGEST AXIS) PERPENDICULAR TO WALL.
7. GEOGRID SHALL BE INSTALLED ON HORIZONTAL SURFACE OF COMPACTED STRUCTURAL FILL.
8. GEOGRID SHALL BE PULLED TIGHT BEHIND WALL. STAKE END OF GEOGRID AS REQUIRED TO MAINTAIN TENSION BEFORE COVERING WITH STRUCTURAL FILL.
9. PROTECT GEOGRID FROM CONSTRUCTION DAMAGE PER MANUFACTURERS SPECIFICATIONS. CONSTRUCTION EQUIPMENT SHALL NOT TRAVEL DIRECTLY ON GEOGRID. ANY GEOGRID THAT IS DAMAGED SHALL BE REPLACED WITH NEW GEOGRID AT CONTRACTORS EXPENSE.
10. LOCK+LOAD® WALL CONSTRUCTION AND CONNECTION OF GEOGRID TO WALL TO BE COMPLETED PER MANUFACTURERS SPECIFICATIONS.
11. ALL STRUCTURAL FILL TO BE COMPACTED TO 95% OF SOILS MAXIMUM DRY DENSITY PER ASTM D-698, STANDARD PROCTOR.
12. HEAVY CONSTRUCTION EQUIPMENT SUCH AS VIBRATORY DRUM ROLLERS, LOADED DUMP TRUCKS, FRONT-END LOADERS, ETC., SHALL NOT OPERATE WITHIN FIVE FEET OF BACK OF WALLS. STRUCTURAL FILL PLACED IN THIS ZONE SHALL HAVE MAXIMUM LOOSE LIFT THICKNESS OF 12 INCHES AND SHALL BE COMPACTED USING HAND OPERATED COMPACTION EQUIPMENT.
13. MAXIMUM RADIUS OF 8' IS RECOMMENDED FOR THE WALL CORNERS WHICH ARE MORE THAN 90°.



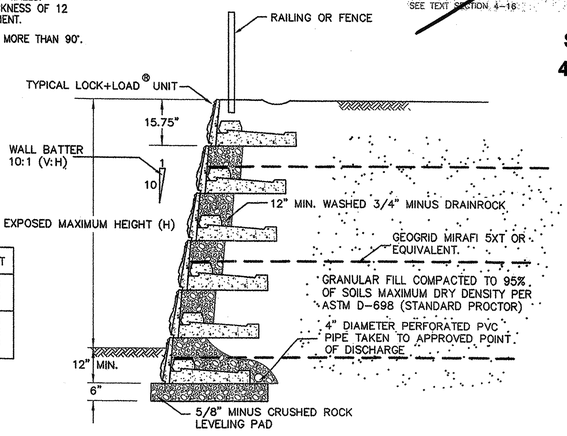
TYPICAL SECTION MAXIMUM EXPOSED HEIGHT 4.25'

CROSS SECTION-BACK OF LOT WALLS

SCALE: 1"=2'

EXPOSED WALL HEIGHT (H)	LAYER NO.	REINFORCEMENT (USE MIRAFI 5XT OR EQUAL)	HEIGHT
5.56	1 2	4.5 4.5	0.66 3.33
6.87	1 2 3	5.0 5.0 5.0	0.66 3.33 6.00

NOTE: GEOGRID ELEVATION TOLERANCE ± .5'
ALL DIMENSIONS ARE IN FEET



CROSS SECTION-BACK OF LOT WALLS

SCALE: 1"=2'

PFN # 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION

BY _____ DATE _____

R/W PERMIT NUMBER _____

NO.	DATE	DESCRIPTION
1	03/04/03	PER COUNTY REVIEW

Terra Associates, Inc.
Consultants in Geotechnical Engineering, Geology and Environmental Earth Sciences
12525 Willows Road, Suite 101, Kirkland, Washington 98034 •Phone (425) 821-7777 •Fax (425) 821-4334

LOCK+LOAD® RETAINING WALL
VILLAGE AT WEBSTER'S POND
146TH STREET SOUTHEAST
SNOHOMISH COUNTY, WASHINGTON

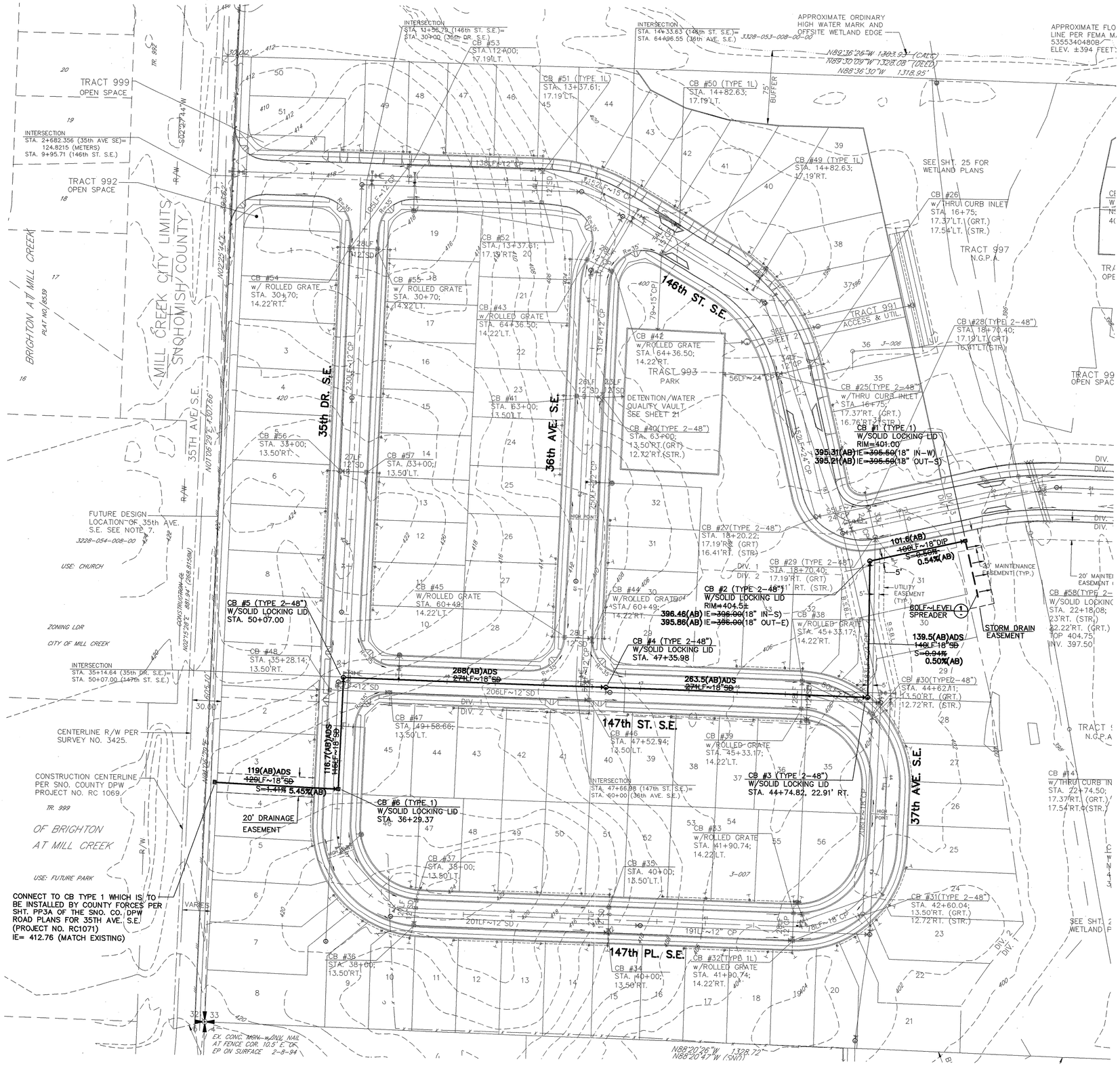
THEODORE J. SCHEMPER — STATE OF WASHINGTON — 36742 — REGISTERED PROFESSIONAL ENGINEER — 2-5-03

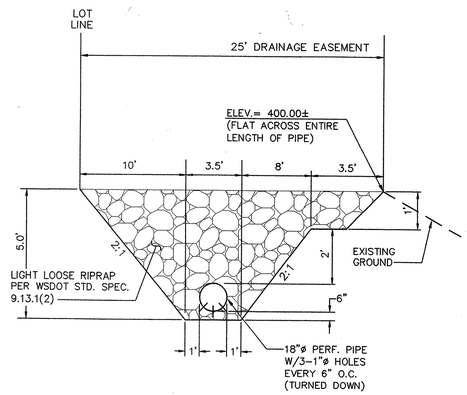
EXPIRES 6/18/03

Prepared by:	MVG
Designed by:	TA
Approved by:	TJS
Date:	NOV 2002
Project No. T-3772-1	
Sheet No. 1	

HDEV-2379

SW 1/4, SW 1/4, SEC. 33 ,TWP. 28 ,RGE. 5 ,W.M.





1 **LEVEL SPREADER DETAIL**

SCALE:1"=50'
CONTOUR INTERVAL = 2'
100 0 50 100

NO.	REVISION	DATE	BY
1.	AS-BUILTS BY GROUP FOUR, INC. (AB)	4-14-03	RFA

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
FILENAME P:\99-8040\99-8040-AB-SHEET1.DWG Sheet1 Aug 23, 2003 - 10:47am
PLOTTED By: Daniel K. Routte

CHARLES O. VANDER ENGINEER STATE OF WASHINGTON 18227 REGISTERED PROFESSIONAL ENGINEER
EXPIRES

AS-BUILTS
VILLAGE AT WEBSTER'S POND
CULVERT BYPASS SYSTEM
PLAN REVISION NO. 3
SNOHOMISH COUNTY WASHINGTON

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

"AS-BUILT" (DIV. 1)
WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS
BY: _____ DATE: 6/23/03
PROJECT ENGINEER/SURVEYOR
BY: _____ DATE: 6/23/03
PROJECT DEVELOPER

DANIEL K. ROUTTE STATE OF WASHINGTON 18227 REGISTERED PROFESSIONAL LAND SURVEYOR
EXPIRES: 1/12/04

NO SCALE
PFN #: 98-108094

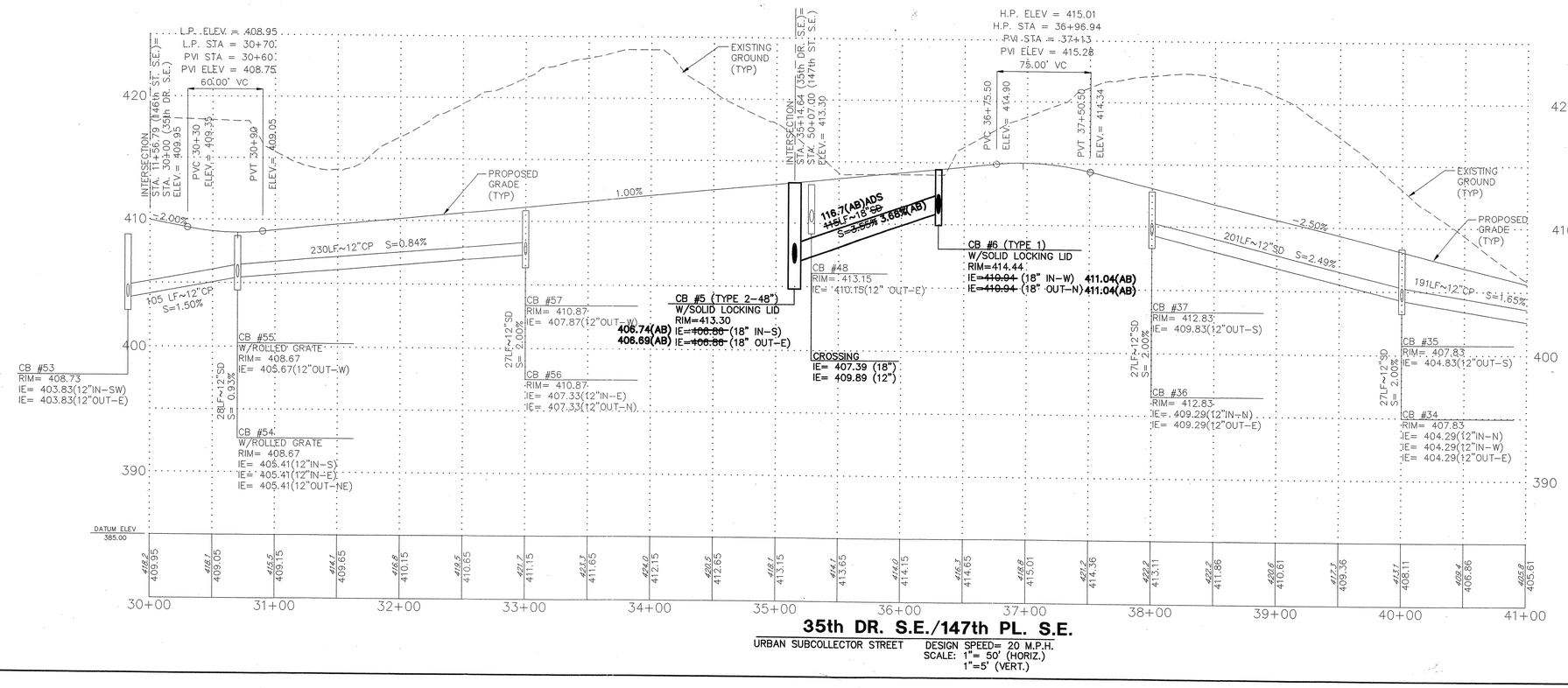
SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
(OR GRADING IN THE CASE OF GRADING PERMITS)
BY _____
R/W PERMIT NO. _____

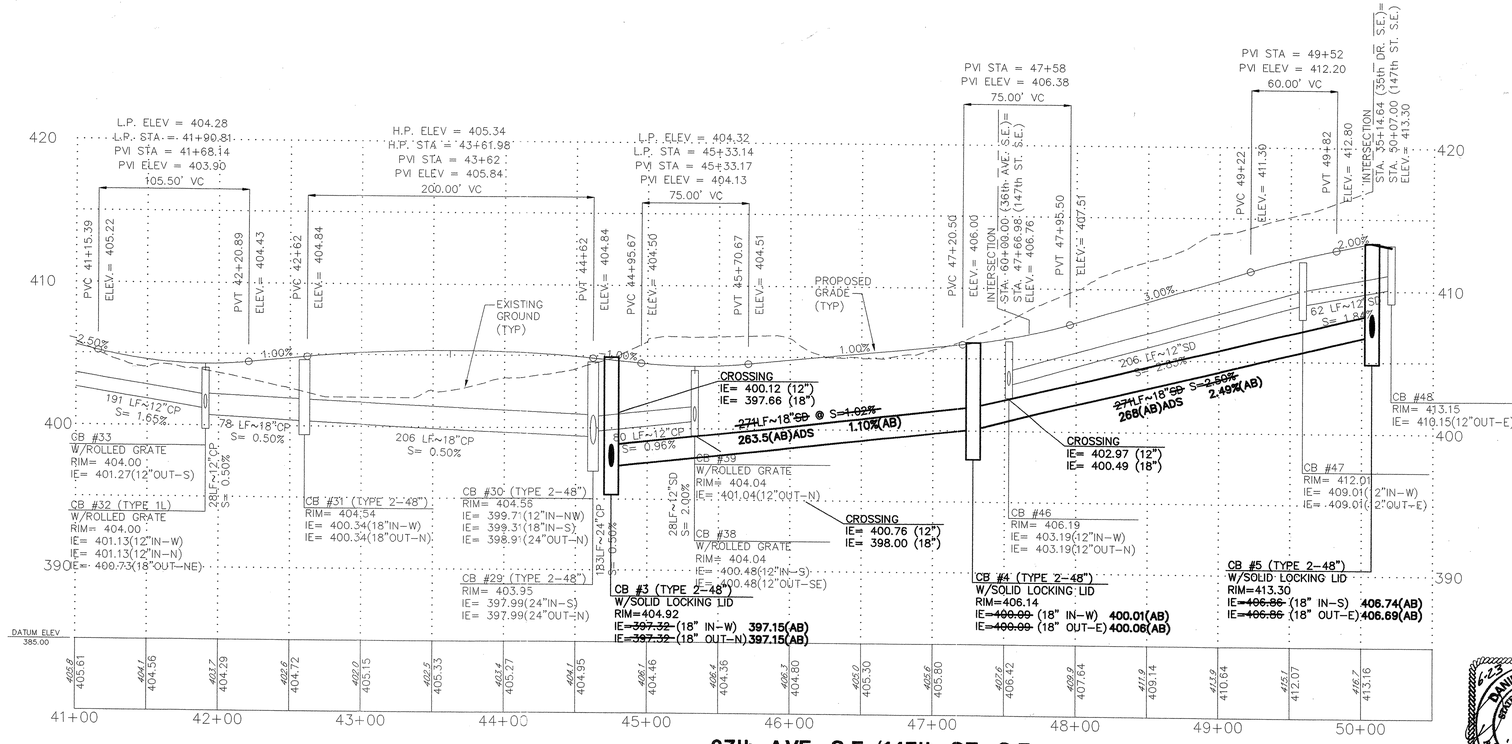
SHT. 1 OF 2

JOB NO: 99-8040

HDBV-2400

SW 1/4, SW 1/4, SEC. 33 ,TWP. 28 ,RGE. 5 ,W.M.





NO.	REVISION	DATE	BY
1.	AS-BUILTS BY GROUP FOUR, INC. (AB)	4-14-03	RFA

CHARLES O. VANIER — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON — 31784

EXPIRES:

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 • (206)362-4244 • FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT
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UPDATED: WED 23 2003 09:44:08 GP-PRES PLOTTED 1:1=1

AS-BUILTS

VILLAGE AT WEBSTER'S POND

CULVERT BYPASS SYSTEM PLAN REVISION NO. 3

SNOHOMISH COUNTY WASHINGTON

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

"AS-BUILT" (DIV. I)

WE HEREBY DECLARE THAT ALL IMPROVEMENTS DENOTED AS AS-BUILT ARE LOCATED AS SHOWN ON THESE PLANS

BY: _____ DATE: 6/23/03
PROJECT ENGINEER OR SURVEYOR

BY: _____ DATE: 6/23/03
PROJECT DEVELOPER

PFN #: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
(OR GRADING IN THE CASE OF GRADING PERMITS)

BY _____

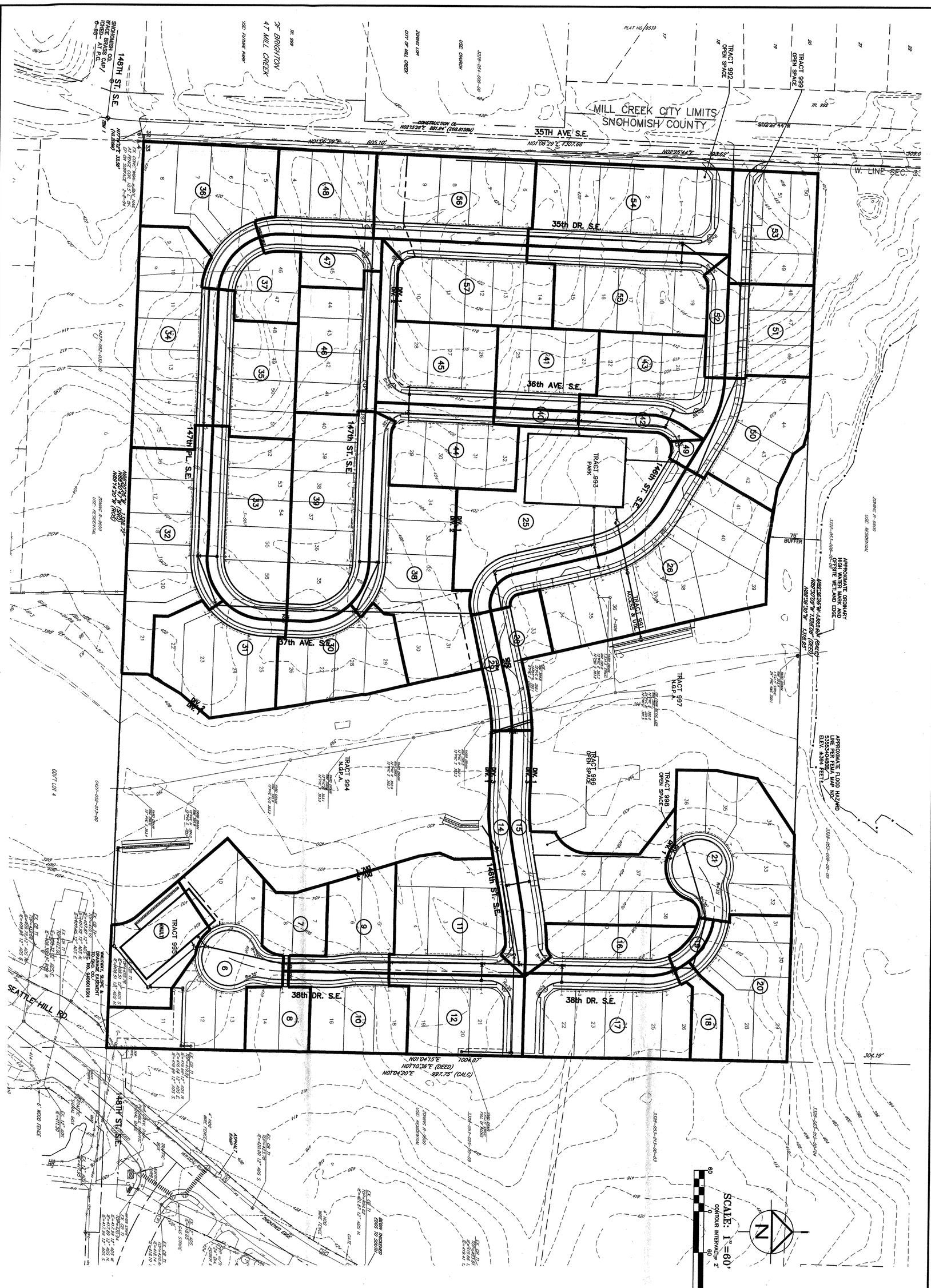
R/W PERMIT NO. _____

DANIEL K. ROUPP — STATE OF WASHINGTON — 19450 — REGISTERED PROFESSIONAL LAND SURVEYOR — EXPIRES: 11/2/04

SHT. 2 OF 2

JOB NO: 99-8040

HDV-2401



JOB NO:99-8040

SHT 1 OF 1

VILLAGE AT WEBSTER'S POND

CATCHMENT AREA MAP
SEDIMENT POND SIZING

SNOHOMISH COUNTY WASHINGTON

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)775-4581 * (206)362-4244 * FAX(206)362-3819
SURVEYING ENGINEERING PLANNING MANAGEMENT

DRAWN BY: DATE:
CHECKED BY: DATE:
APPROVED BY: DATE:

NO.	REVISION	DATE	BY

FILENAME: J:\99-8040\WSP\8040SEDIM-1E2
UPDATED: AUG 02 2001 11:04:21

HDV- 2402

TOTAL SITE AREA= 30.26
ACRES EXISTING LAND USE= PASTURE
SOIL TYPE= ALDERWOOD
HYDROLOGIC SOIL GROUP= "C"

WEST BASIN
7.01 ACRES

EAST BASIN
7.14 ACRES

6.11 ACRES

UNDEVELOPED
(N.G.P.A.)

OFF-SITE FLOWS (A)

OFF-SITE FLOWS (B)

OFF-SITE FLOWS (C)

TIME OF CONCENTRATION TRAVEL PATH (TYP.)

BASIN SPLIT LINE (TYP)

SCALE: 1"=60'
CONTOUR INTERVAL = 2'
60 0 60 120

TRACT 998
TRACT 997 N.G.P.A.
TRACT 996 OPEN SPACE
TRACT 995 N.G.P.A.
TRACT 994 OPEN SPACE
TRACT 993 OPEN SPACE
TRACT 992 OPEN SPACE
TRACT 991 N.G.P.A.
TRACT 990
TRACT 989 N.G.P.A.
TRACT 988 OPEN SPACE
TRACT 987 PARK
TRACT 986 OPEN SPACE
TRACT 969 N.G.P.A.
TRACT 999 OPEN SPACE
TRACT 985 OPEN SPACE

ROAD A
ROAD B
ROAD C
ROAD D
ROAD E
ROAD F
ROAD G
ROAD H
ROAD J

35TH AVE S.E.
148TH ST. S.E.
MILL CREEK CITY LIMITS
SNOHOMISH COUNTY

ZONING R-9600
USE: RESIDENTIAL

ZONING LDR
CITY OF MILL CREEK

USE: CHURCH

USE: FUTURE PARK

OF BRIGHTON
AT MILL CREEK

TR. 999

ZONING R-9600
USE: RESIDENTIAL

3328-053-008-00-00
3328-053-012-00-04
3328-053-013-00-03
3328-053-025-00-09
3328-054-008-00-00
0427-052-032-00
0427-053-013-00

N89°36'25"W 1323.93' (CALC)
N89°30'09"W 1328.09' (DEED)
N89°36'30"W 1318.95'

N01°29'34"E 1328.09' (DEED)
N01°29'34"E 1323.93' (CALC)

N89°20'26"W 1398.72'
N89°20'47"W (SNO)
N89°14'20"W (ROS)

N01°17'23"E 330.56'
(10.20RW)

N01°29'34"E 1328.09' (DEED)
N01°29'34"E 1323.93' (CALC)

N01°29'34"E 1328.09' (DEED)
N01°29'34"E 1323.93' (CALC)

S02°27'44"W 1318.95'

N01°29'34"E 1328.09' (DEED)
N01°29'34"E 1323.93' (CALC)

SW1/4, SW1/4 ,SEC. 33 ,TWP. 28 ,RGE. 5 ,W.M.

NO.	REVISION	DATE	BY

PLANNING: (425)868-1100 FAX(425)868-1677
ENGINEERING: (425)868-1100 FAX(425)868-1677

GROUP FOUR, Inc.
16030 JUANITA-WOODINVILLE WAY NE
BOTHELL, WASHINGTON 98011
(425)776-4601 • (206)362-4244 • FAX(206)362-3619

SURVEYING	ENGINEERING	PLANNING
DRAWN BY:	CHECKED BY:	MANAGEMENT
DATE:	DATE:	APPROVED BY:
		DATE:

VILLAGE AT WEBSTER'S POND
CATCHMENT AREA MAP
SEDIMENT POND SIZING

SNOHOMISH COUNTY WASHINGTON

SHT 1 OF 1

JOB NO: 99-8040

HDV-2404

PLANT SCHEDULE

WETLAND ENHANCEMENT PLANTINGS

SYMBOL	PLANT NAME	CONDITION	SPACING
	SHRUBS		
	redstem dogwood *Cornus sericea ssp. sericea* *= C. stolonifera*	2 gal. cont.	5' o.c.
	twinberry *Lonicera involucrata*	1 gal. cont.	4' o.c.
	Pacific ninebark *Physocarpos capitatus*	2 gal. cont.	5' o.c.
	western crabapple *Pyrus fusca*	5 gal. cont.	15' o.c.
	peafruit rose *Rosa pisocarpa*	1 gal. cont.	3' o.c.
	salmonberry *Rubus spectabilis*	2 gal. cont.	5' o.c.
	Sitka willow *Salix sitchensis*	2 gal. cont.	5' o.c.
	EMERGENTS		
	broadleaf water-plaintain *Alisma plantago-aquatica var. Americana*	bare root	24" o.c.
	slough sedge *Carex obnupta*	bare root	24" o.c.
	lenticular sedge *Carex lenticularis*	bare root	24" o.c.
	creeping spikerush *Eleocharis palustris*	bare root	24" o.c.
	hardstem bulrush *Scirpus acutus*	bare root	24" o.c.
	wooly sedge *Scirpus cyperinus v. brachypodus*	rhizome	24" o.c.
	small-fruited bulrush *Scirpus microcarpus*	bare root	24" o.c.

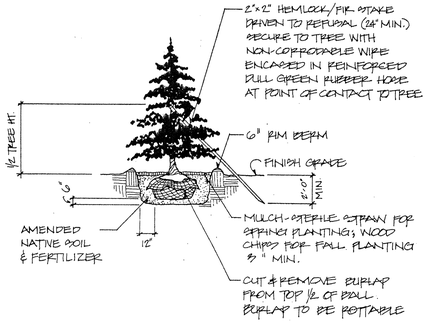
WETLAND ENHANCEMENT SEED MIX

% By Weight		Seeding Rate
10%	*Agrostis tenuis*	2 lbs./ac.
10%	*Alopecurus geniculatus*	5 lbs./ac.
20%	*Carex obnupta*	7 lbs./ac.
20%	*Scirpus microcarpus*	7 lbs./ac.
20%	*Glyceria grandis/elata*	8 lbs./ac.
10%	*Juncus acuminatus*	2 lbs./ac.
10%	*Juncus ensifolius*	2 lbs./ac.

Note: Handseed at rate specified (Multiply seeding rate by acreage, then round up.)

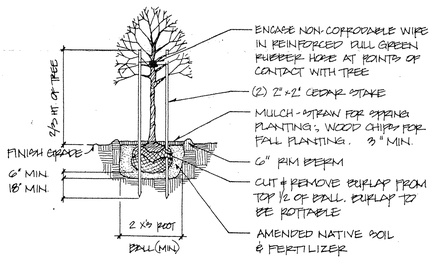
BUFFER ENHANCEMENT PLANTINGS

SYMBOL	PLANT NAME	CONDITION	SPACING
	TREES		
	bigleaf maple *Acer macrophyllum*	5 gal. cont.	25' o.c.
	western hemlock *Tsuga heterophylla*	5 gal. cont.	25' o.c.
	SHRUBS		
	vine maple *Acer circinatum*	2 gal. cont.	10' o.c.
	western serviceberry *Amelanchier alnifolia*	2 gal. cont.	10' o.c.
	tall Oregon grape *Berberis aquifolium*	1 gal. cont.	3' o.c.
	beaked hazelnut *Corylus cornuta*	2 gal. cont.	10' o.c.
	oceanspray *Holodiscus discolor*	2 gal. cont.	10' o.c.
	mock-orange *Philadelphus lewisii*	2 gal. cont.	10' o.c.
	Indian plum *Oemleria cerasiformis*	2 gal. cont.	10' o.c.
	bitter cherry *Prunus emarginata var. mollis*	2 gal. cont.	10' o.c.
	red current *Ribes sanguineum var. sanguinium*	1 gal. cont.	3' o.c.
	nootka rose *Rosa nutkana*	1 gal. cont.	3' o.c.
	thimbleberry *Rubus parviflorus*	1 gal. cont.	3' o.c.
	red elderberry *Sambucus racemosa*	1 gal. cont.	5' o.c.
	snowberry *Symphoricarpos albus*	1 gal. cont.	3' o.c.



CONIFEROUS TREE PLANTING DETAIL

No Scale



DECIDUOUS TREE PLANTING DETAIL

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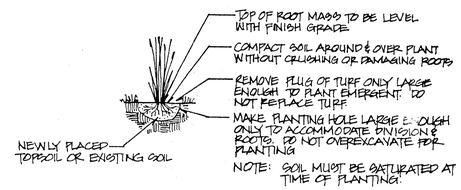
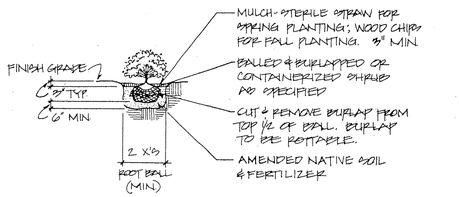


EMERGENT MATERIAL PLANTING DETAIL

No Scale



SHRUB PLANTING DETAIL

No Scale

INSTALLATION NOTES

1. All planting and site preparation operations shall be conducted according to American Nurseryman's Association Guidelines.
2. Installation will be performed by a Contractor with experience in native plant restoration, particularly wetland enhancement.
3. The limits of work within the mitigation area shall be clearly flagged in the field and observed throughout the construction phase. No disturbance will be allowed beyond the mitigation area.
4. Remove all weedy species such as reedcanary grass, Scot's broom, and blackberry as directed by the Wetland Ecologist.
5. Prior to plant installation soil samples will be taken to determine the existing soil's suitability as a planting medium. Recommendations will be made regarding the need for soil amendments and imported topsoil based on test results. The Contractor must obtain these recommendations from the Wetland Ecologist before the installation of plant material begins.
6. All plant materials shall be native to the Northwest and preferably to the Puget Sound region. Plant material shall be from native stock, no cultivars or horticultural varieties will be allowed. Plant material shall be from nursery grown stock, unless otherwise approved by the Wetland Ecologist.
7. All plant material scheduled for installation will be identified in the plant schedule for this project. Proposals for substitutions require the approval of the Wetland Ecologist.
8. All plant material shall be inspected by the Wetland Ecologist prior to installation to verify conformance to the plant schedule and plant characteristics. The Wetland Ecologist reserves the right to require replacement or substitution of unsuitable plant material.
9. Plants shall be installed per the planting plan following accepted procedures as outlined in the planting notes, specification document, and current industry standards.
10. Plants shall be placed as shown on the drawing in clustered groupings or as directed by the Wetland Ecologist.
11. The requirements of all nursery grown plant material are identified in the plant schedule and shall be bare root, containerized, or balled and burlapped. Only sound, healthy, vigorous plants, free of defects, diseases, and all forms of infestations will be accepted. The Wetland Ecologist can provide a list of nurseries where native plant material is available.
12. To assure greater survival of newly planted material an autumn planting (Oct.-Dec.) is recommended. Implementation at this time will also minimize the impacts of erosion and sedimentation resulting from construction operations. Spring planting (March - April) will require an irrigation program throughout the summer season. The irrigation program shall be developed by the Contractor and approved by the Wetland Ecologist.
13. No planting activities shall commence until completion of site preparation and earth work.
14. Emergent zones within the wetland enhancement area shall be excavated to a depth as directed by the Wetland Ecologist and lined with bentonite.
15. The Contractor shall protect from damage all plant material scheduled to remain within the limits of the project boundaries.
16. Dig, pack, transport, and handle all plants with care to ensure protection from injury. Store plants in the manner necessary to accommodate their horticultural requirements. Heel-in plants if necessary to keep them from drying out.
17. Wetland plants shall be kept saturated and shaded until the actual time of installation. Do not allow wetland plants to dry out or sit in the sun prior to or during installation. Immediately saturate the wetland planting area after planting to avoid capillary stress.
18. Plant installation will commence when the finish grading in the planting area has been completed.
19. Plant material delivered and accepted shall be planted immediately. Plants that can not be planted within one (1) day after arrival shall be "heeled-in" in accordance with accepted horticultural practice. When authorized by the Wetland Ecologist, plants may be temporarily stored at the sole responsibility of the Contractor. Plants in storage shall be protected at all times from extreme weather conditions. All plants that must be stored longer that one (1) month shall be planted in nursery rows and maintained by the Contractor at no additional cost to the Owner. Plants temporarily stored shall be subject to inspection and approval by the Wetland Ecologist prior to planting.
20. Do not remove container grown stock from containers until the planting time. Containerized plants shall be removed from their containers in such a manner to prevent disturbances to the root system. Under no circumstances shall the plant be removed from the container by pulling the main stem. Plants removed from their containers shall be planted without delay.
21. Excavate circular planting pits with vertical sides and install plants as shown in the planting details. Backfill excavated pits with native soil and amendments as required in the specifications and planting details.
22. Planting shall not be done during freezing weather or when conditions are unfavorable to work.
23. Plants shall be protected at all times to prevent the roots from drying out during the planting operation.
24. Install fertilizer as specified by the Wetland Ecologist into the planting pits of all plant material. Fertilizer composition and application rate must be approved by the Wetland Ecologist prior to installation.
25. A 3 inch layer of mulch shall be applied to the circle of bare earth around individual upland plantings to inhibit competition from herbaceous plants. Mulch shall be sterile straw for spring plantings or wood ships for fall plantings. Mulching must be completed prior to hydroseeding.
26. No bark dust, bark chips, or bark products of any kind will be allowed in the wetland mitigation area.
27. Mulch and hydroseed with appropriate hydroseed mix. The composition and application rate of the hydroseed mix shall be determined by the Wetland Ecologist. Mulching and hydroseeding shall occur immediately after plant installation. Hydroseeding will not be allowed between October 1 and April 1.
28. The Contractor is responsible for watering newly installed plant material to ensure survivability. Plant material will need to be watered twice within the first 24 hours. Plant material shall be watered once a week during the growing season. The schedule and means of watering shall be approved by the Wetland Ecologist.
29. Contractor shall warrant all plant materials to remain alive and healthy for period of one year after completion and acceptance of planting. The Contractor shall replace all dead or unhealthy plants per plans and specifications as directed by the Wetland Ecologist.
30. The Wetland Ecologist will provide Construction Monitoring Services for all landscaping operations associated with the installation of this planting plan including plant locations, field modifications, and planting techniques to ensure compliance with the mitigation plan.
31. The Contractor shall give the Wetland Ecologist a minimum of ten (10) days notice prior to proceeding with the construction of this planting plan.

CONCEPTUAL WETLAND MITIGATION PLAN
VILLAGE AT WEBSTER'S POND

STAFFORD HOMES, INC.
16016 - 118TH PLACE N.E.
BOTHELL, WASHINGTON 98011
(425) 488 - 2222

CSS
COOKE SCIENTIFIC SERVICES INC.
919 NE 71ST ST.
SEATTLE, WA 98115
PH: 206-525-5105
FAX: 206-525-5351

REVISED 9-22-99

Date: 9-15-99
Designed by: SC
Drawn by: WTT
Checked by: SC

SHEET 2
OF 2

WM. TODD TRESSLER, LANDSCAPE ARCHITECT

HDV-2405

CONCEPTUAL WETLAND MITIGATION PLAN
VILLAGE AT WEBSTER'S POND

LEGEND

- Wetland Fill
- Enhanced Wetland Converted to Buffer
- Enhanced Wetland
- Enhanced Buffer
- Existing Wetland Boundary
- Converted Wetland Boundary
- Buffer Boundary

Note: Areas shown as Enhanced Buffer shall be planted with randomly clustered trees and shrubs to achieve 50% coverage. Areas shown as Enhanced Wetland Converted to Buffer and Enhanced Wetland shall be similarly planted with the addition of seeding throughout the entire area shown

BASE INFORMATION PROVIDED BY DODDS ENGINEERS, INC. @ 4205 148TH AVE. NE., SUITE 200, BOTHELL, WA 98007 , (425) 885 7877

ZONING R-9600
USE: RESIDENTIAL
WEBSTER'S POND
APPROXIMATE ORDINARY HIGH WATER MARK AND OFFSITE WETLAND EDGE
N88°36'25"W
N88°30'09"W
1303.93' (CALC)
1328.08' (DEED)
MIN. 75' BUFFER FROM OFFSITE WETLAND
VERTICAL WALL
CATEGORY I WETLAND
NATIVE GROWTH PROTECTION AREA
ENHANCED WETLAND BUFFER 56' MIN.
DIVISION 2
DIVISION 3
DIVISION 1
DIVISION 4
DIVISION 5
STORM DRAINAGE
OPEN SPACE
PUBLIC COLLECTOR STREET
PRIVATE ACCESS WAY
4' WALKWAY
COVERED GATHERING STRUCTURE
PARK
R=40'
MILL CREEK CITY LIMITS
SNOHOMISH COUNTY
(THOMAS LAKE RD.)
W LINE SEC. 3
35TH AVE. S.E.
AS BUILT CENTERLINE
ZONING BOUNDARY
CONCEPTUAL BUILDING FOOTPRINT (TYP.)
OFFSITE FLOWS
56' MIN. BUFFER FOR OFFSITE WETLAND
WALKWAY, SLOPE & DRAINAGE EASEMENT TO SNO. CO. REC. NO. 9406010301
APPROXIMATE LOCATION OF OFFSITE WETLAND
148TH ST. S.E. AS BUILT CL
SEATTLE HILL RD.
TBM
1316.82 (CALC)
N88°20'47"W (SNO)
N89°14'20"W (ROS)
1027
981.75' (CALC) (DEED)
304.19

SCALE: 1" = 60'
0 30 60 120

REVISED 9-22-99

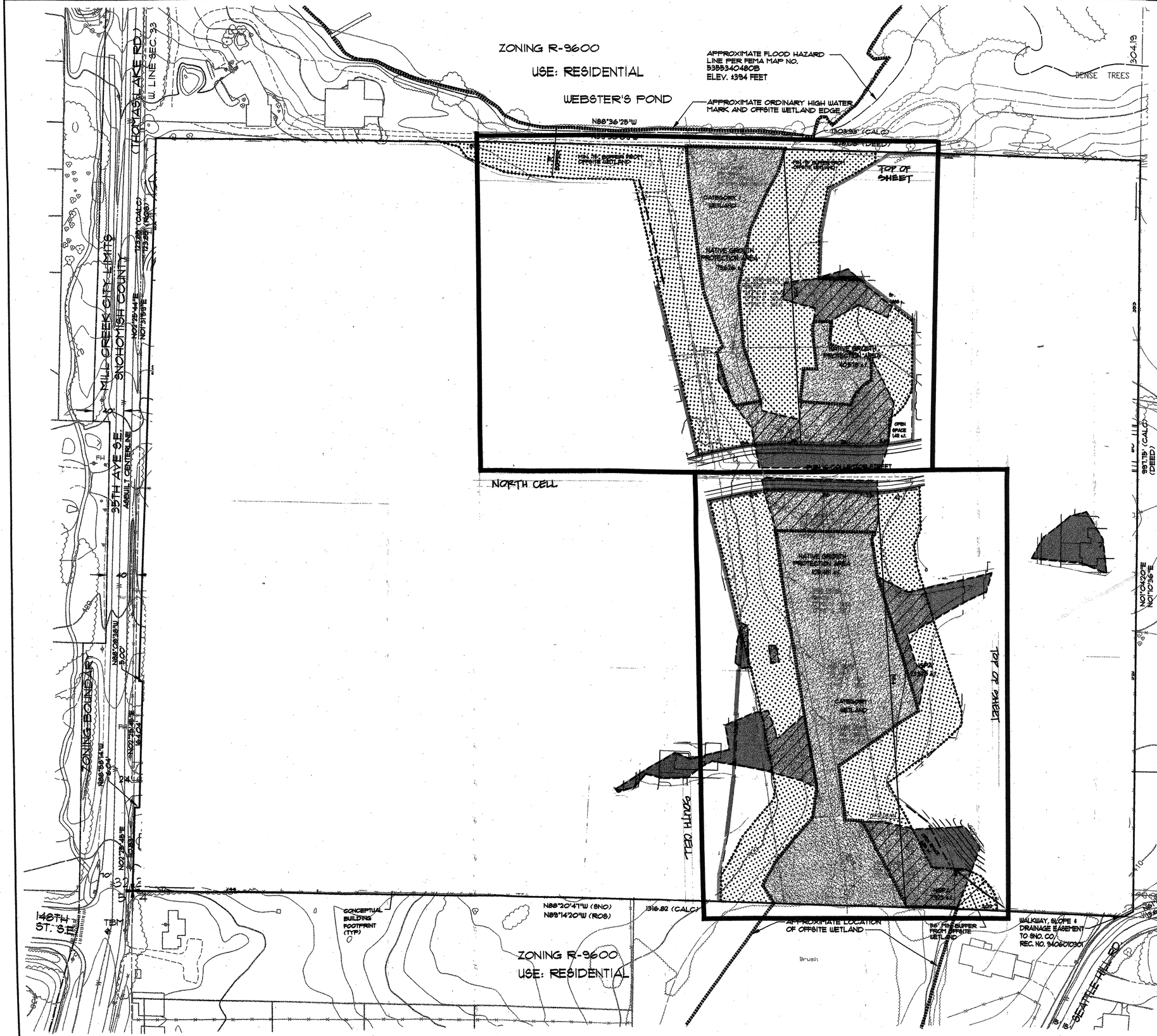
Date:	9-15-99
Designed by:	SC
Drawn by:	WTT
Checked by:	SC
SHEET	1
OF	2

STAFFORD HOMES, INC.
16016 - 118TH PLACE N.E.
BOTHELL, WASHINGTON 98011
(425) 488 2222

CSS
COOKE SCIENTIFIC SERVICES INC.
919 NE 71ST ST.
SEATTLE, WA 98115
PH: 206-525-5105
FAX: 206-525-5351

WM. TODD TRESSLER, LANDSCAPE ARCHITECT
10021 MAYDAY AVENUE NORTHWEST, SEATTLE, WA 98177 (206) 789 9773

HDV-2406



STAFFORD HOMES, INC.
16016 - 118TH PLACE N.E.
BOTHELL, WASHINGTON 98011

(425) 488 2222

WETLAND MITIGATION PLAN
VILLAGE AT WEBSTER'S POND

WETLAND MITIGATION SITE PLAN

CSS
COOKE SCIENTIFIC SERVICES INC.
919 NE 71ST ST.
SEATTLE, WA 98115
PH: 206-525-5105
FAX: 206-525-5351

Date: 9.28.00
Designed by: D.C.
Drawn by: W.T.T.
Checked by: D.C.

SHEET 1 OF 8

WM. TODD TRESSLER, LANDSCAPE ARCHITECT
10051 MARY AVENUE NORTHWEST, SEATTLE WA 98177 (206) 789 0773

LEGEND

- Wetland Fill
- Enhanced Wetland Converted to Buffer
- Enhanced Wetland
- Enhanced Buffer
- Existing Wetland Boundary
- Converted Wetland Boundary
- Buffer Boundary
- Structural Retaining Wall
- SHEET FLOW SPREADER

Note: Areas shown as Enhanced Buffer shall be planted with randomly clustered trees and shrubs to achieve 50% coverage. Areas shown as Enhanced Wetland Converted to Buffer and Enhanced Wetland shall be similarly planted with the addition of seeding throughout the entire area shown on the plan.

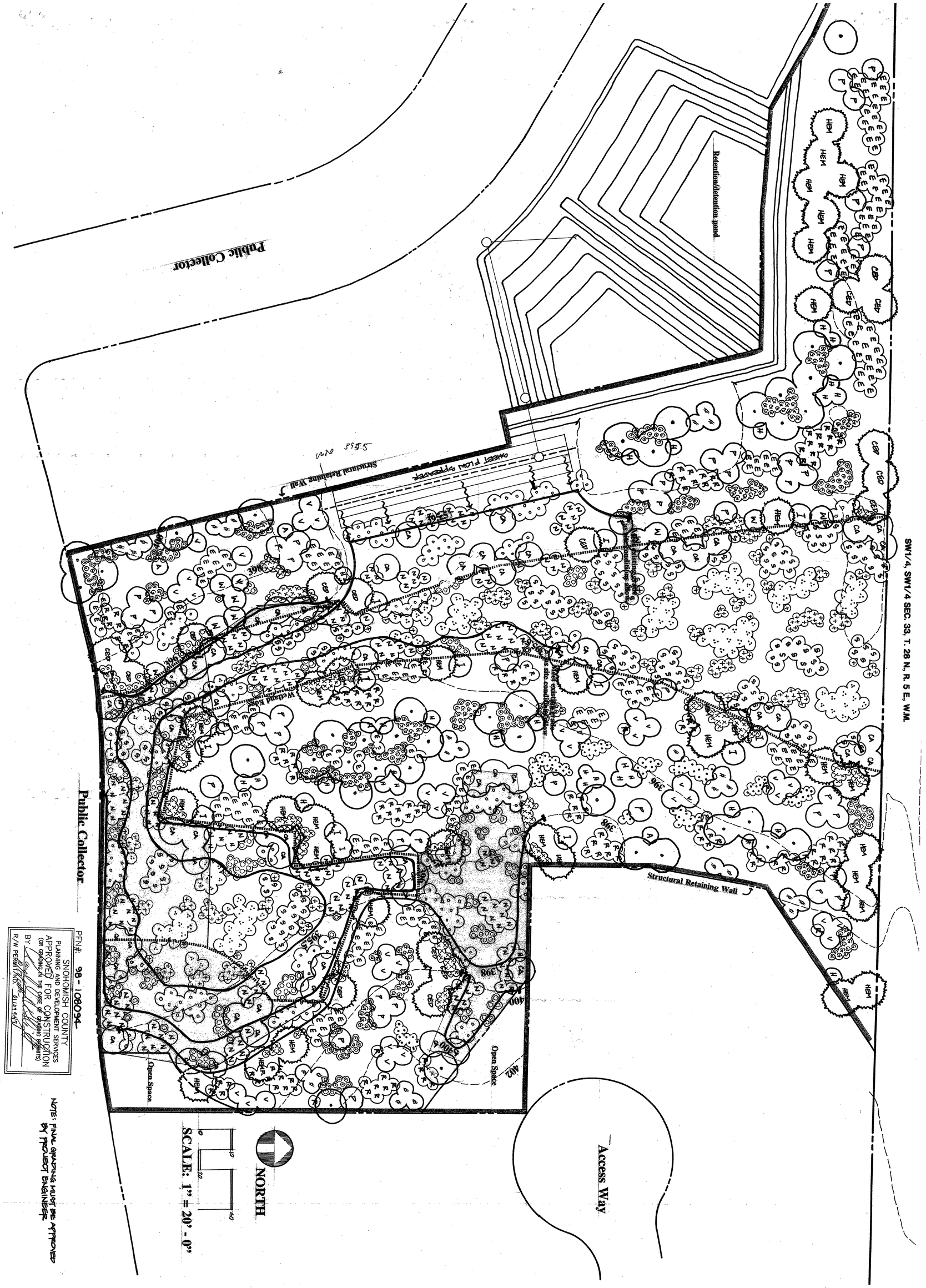
As-Built Monitoring file #2

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
(OR GRADING IN THE CASE OF GRADING PERMITS)
BY _____ DATE 10/17/00
R/W PERMIT NO. 01107947

SCALE: 1" = 60'
0 30 60 120

HDV-2407

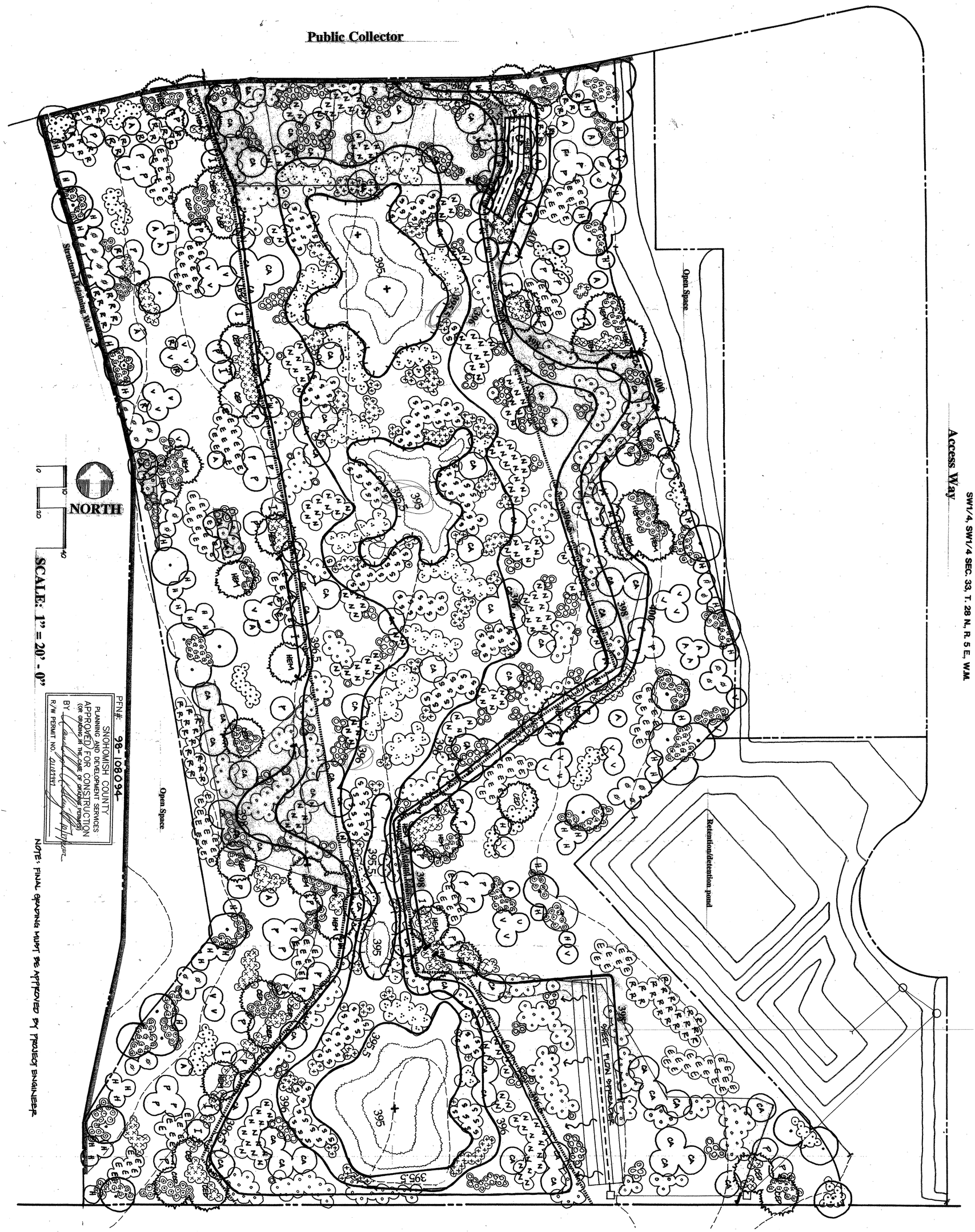


PFN#: 98-108094
SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
(OR GRADING IN THE CASE OF GRADING PERMITS)
BY:
R/W PERMIT NO.

NOTE: FINAL GRADING MUST BE APPROVED BY PROJECT ENGINEER

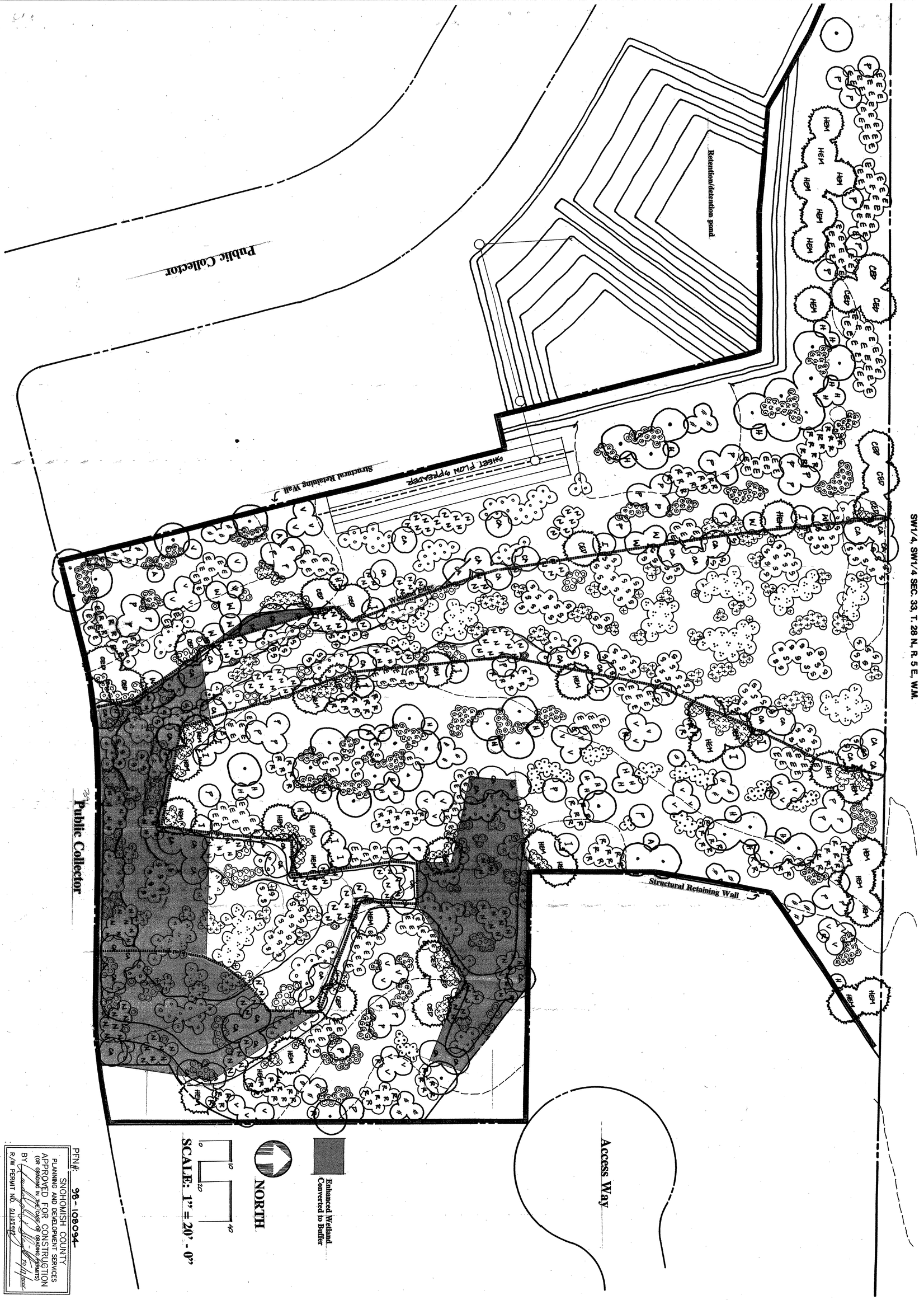
SHEET 2 OF 8	REVISIONS Grading - SSC 10/25/00	Date: 9-29-00 Designed by: DSC Drawn by: WPP Checked by: DSC	CSS COOKE SCIENTIFIC SERVICES INC. 919 NE 71ST ST. SEATTLE, WA 98115 PH: 206-525-5105 FAX: 206-525-5351	STAFFORD HOMES, INC. 16016 - 118TH PLACE N.E. BOTHELL, WASHINGTON 98011 (425) 488 2222	WETLAND MITIGATION PLAN VILLAGE AT WEBSTER'S POND GRADING PLAN NORTH CELL

HDIV-2408



SHEET 3 OF 8	REVISIONS: Grading 55C 10/25/00	Date: 9.29.00 Designed by: S.S.C. Drawn by: W.T.T. Checked by: S.S.C.	CSS COOKE SCIENTIFIC SERVICES INC. 919 NE 71ST ST. SEATTLE, WA 98115 PH: 206-525-5105 FAX: 206-525-5351	STAFFORD HOMES, INC. 16016 - 118TH PLACE N.E. BOTHELL, WASHINGTON 98011 (425) 488 2222	WETLAND MITIGATION PLAN VILLAGE AT WEBSTER'S POND GRADING PLAN SOUTH CELL

HDIV-2409

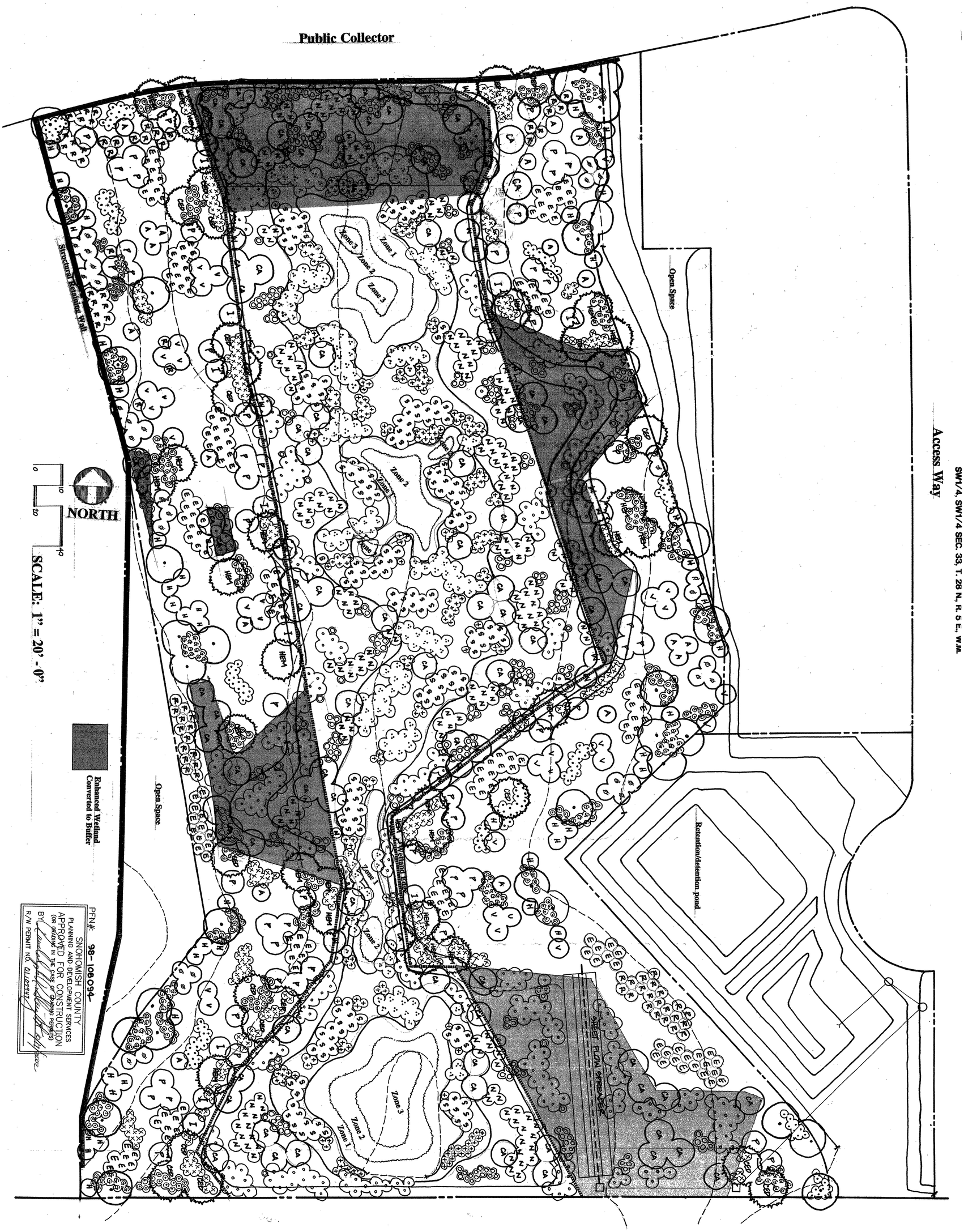


PFN# 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
(OR GRADING IN THE CASE OF GRADING PERMITS)
BY _____
R/W PERMIT NO. _____

SHEET 4 OF 8	REVISIONS	Date: 9-29-00 Designed by: SSC Drawn by: WTT Checked by: SSC	CSS COOKE SCIENTIFIC SERVICES INC. 919 NE 71ST ST. SEATTLE, WA 98115 PH: 206-525-5105 FAX: 206-525-5351	STAFFORD HOMES, INC. 16016 - 118TH PLACE N.E. BOTHELL, WASHINGTON 98011 (425) 488 2222	WETLAND MITIGATION PLAN VILLAGE AT WEBSTER'S POND PLANTING PLAN NORTH CELL

HDN-2410



SHEET 4 OF 8	REVISIONS: Legend 5% 10/25/00	Date: 9.29.00 Designed by: D.S.C. Drawn by: W.T.T. Checked by: D.S.C.	CSS COOKE SCIENTIFIC SERVICES INC. 919 NE 71ST ST. SEATTLE, WA 98115 PH: 206-525-5105 FAX: 206-525-5351	STAFFORD HOMES, INC. 16016 - 118TH PLACE N.E. BOTHELL, WASHINGTON 98011 (425) 488 2222	WETLAND MITIGATION PLAN VILLAGE AT WEBSTER'S POND PLANTING PLAN SOUTH CELL

HDIV-2411

PLANT SCHEDULE

SYMBOL	PLANT NAME	QTY.	CONDITION	SPACING
	TREES			
	big-leaf maple *Acer macrophyllum*	55	2 gal. cont.	As shown
P	bitter cherry *Prunus emarginata var. mollis*	99	2 gal. cont.	As shown
W	Scouler willow *Salix scouleriana*	27	2 gal. cont.	As shown
CED	Western red cedar *Thuja plicata*	36	5 gal. cont.	As shown
HEM	Western hemlock *Tsuga heterophylla*	61	5 gal. cont.	As shown

SYMBOL	PLANT NAME	QTY.	CONDITION	SPACING
	SHRUBS			
V	vine maple *Acer circinatum*	67	5 gal. cont.	As shown
A	Western serviceberry *Amelanchier alnifolia*	20	2 gal. cont.	As shown
(6)	tall Oregon grape *Berberis aquifolium*	405	1 gal. cont.	3' o.c.
(2)	redstem dogwood *Cornus sericea ssp. sericea = C. stolonifera*	292	2 gal. cont.	5' o.c.
H	beaked hazelnut *Corylus cornuta var. Californica*	76	2 gal. cont.	As shown
O	oceanspray *Holodiscus discolor*	60	2 gal. cont.	As shown
(O)	twinberry *Lonicera involucrata*	470	1 gal. cont.	3'- 4' o.c.
CA	western crabapple *Malus fusca = Pyrus fusca*	141	2 gal. cont.	As shown
I	Indian plum *Oemleria cerasiformis*	26	2 gal. cont.	As shown
N	Pacific ninebark *Physocarpos capitatus*	246	2 gal. cont.	5' o.c.
R	red current *Ribes sanguineum var. sanguinium*	202	2 gal. cont.	5' o.c.
⊗	nootka rose *Rosa nutkana*	480	1 gal. cont.	3' o.c.
⊕	peafruit rose *Rosa pisocarpa*	469	1 gal. cont.	3'- 4' o.c.
◎	thimbleberry *Rubus parviflorus var. parviflorus*	351	1 gal. cont.	3' o.c.
(O)	salmonberry *Rubus spectabilis var. spectabilis*	539	1 gal. cont.	5' o.c.
S	Sitka willow *Salix sitchensis*	316	2 gal. cont.	5' o.c.
E	red elderberry *Sambucus racemosa*	329	2 gal. cont.	5' o.c.
⊙	snowberry *Symphoricarpos albus*	251	1 gal. cont.	3' o.c.

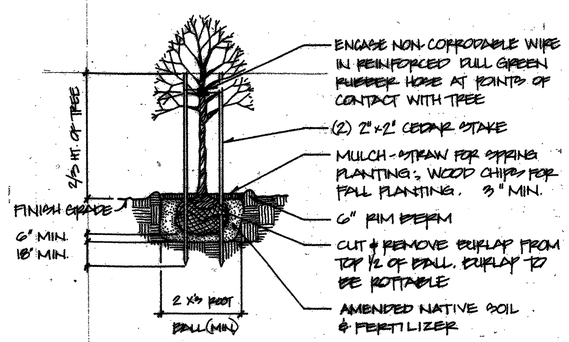
SYMBOL	PLANT NAME	QTY.	CONDITION	SPACING
	EMERGENTS			
Zone 1	Colonial bentgrass *Agrostis ciliatum*	as req.	Seed	Hand seed
	lady fern *Athyrium filix-femina var. cyclosorum*	470	Bare Root	18" o.c.
	largeleaf avens *Geum macrophyllum*	470	Bare Root	18" o.c.
	tall mannagrass *Glyceria elata*	as req.	Seed	Hand seed
	reed mannagrass *Glyceria grandis*	as req.	Seed	Hand seed
	daggerleaf rush *Juncus ensifolius*	470	Bare Root	18" o.c.
Zone 2	sawbeak sedge *Carex stipata var. stipata*	204	Bare Root	18" o.c.
	tapertip rush *Juncus acuminatus*	204	Bare Root	18" o.c.
	slender rush *Juncus tenuis var. tenuis*	204	Bare Root	18" o.c.
	small water forget-me-not *Myosotis laxa*	204	Bare Root	18" o.c.
	water-parsley *Oenanthe sarmentosa*	204	Bare Root	18" o.c.
	Cooley hedgenettle *Stachys cooleyae*	204	Bare Root	18" o.c.
Zone 3	broadleaf water-plantain *Alisma plantago-aquatica*	204	Bare Root	18" o.c.
	lenticular sedge *Carex lenticularis*	204	Bare Root	18" o.c.
	slough sedge *Carex obnupta*	83	Bare Root	18" o.c.
	creeping spikerush *Eleocharis palustris*	83	Bare Root	18" o.c.
	skunk-cabbage *Lysichitum americanum*	83	Bare Root	18" o.c.
	hardstem bulrush *Scirpus acutus*	83	Bare Root	18" o.c.
	wooly sedge *Scirpus cyperinus*	83	Bare Root	18" o.c.
	small-fruited bullrush *Scirpus microcarpus*	83	Bare Root	18" o.c.
	narrowleaf burreed *Sparganium emersum*	83	Bare Root	18" o.c.

WETLAND ENHANCEMENT SEED MIX

% BY WEIGHT	SEEDING RATE
10% *Agrostis tenuis*	2 lbs. / ac.
10% *Alopecurus geniculatus*	5 lbs. / ac.
20% *Carex obnupta*	7 lbs. / ac.
20% *Scirpus microcarpus*	7 lbs. / ac.
20% *Glyceria grandis / elata*	8 lbs. / ac.
10% *Juncus acuminatus*	2 lbs. / ac.
10% *Juncus ensifolius*	2 lbs. / ac.

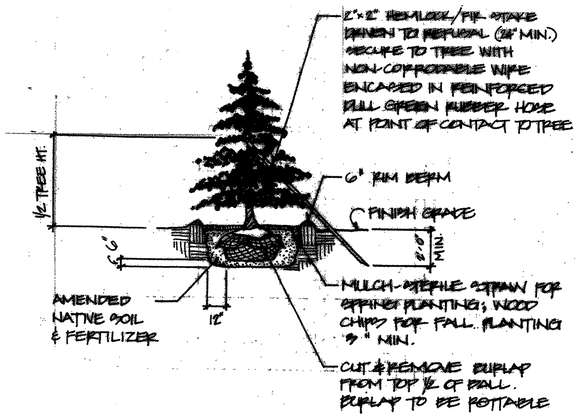
UPLAND ENHANCEMENT SEED MIX

% BY WEIGHT	SEEDING RATE
30% *Agrostis palustris*	2.6 lbs. / ac.
5% *Alopecuris pratensis*	1.2 lbs. / ac.
5% *Bromus carinatus*	0.7 lbs. / ac.
5% *Dactylis glomerata*	0.3 lbs. / ac.
10% *Elymus lanceolatus ssp. riparium*	1.5 lbs. / ac.
15% *Festuca idahoensis*	2.4 lbs. / ac.
30% *Poa compressa*	0.2 lbs. / ac.



DECIDUOUS TREE PLANTING DETAIL

No Scale



CONIFEROUS TREE PLANTING DETAIL

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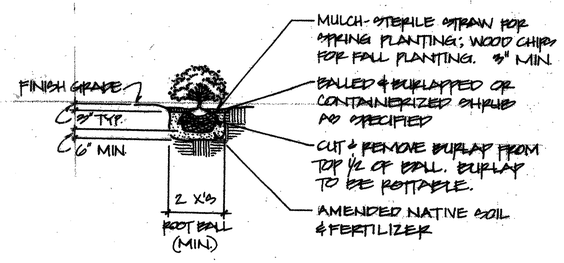
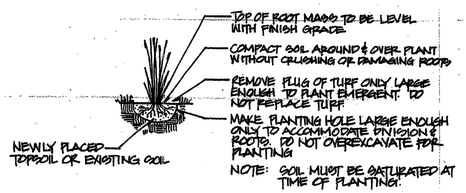


SHRUB PLANTING DETAIL

No Scale



EMERGENT PLANTING DETAIL

No Scale

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
(OR GRADING IN THE CASE OF GRADING PERMITS)
BY _____ 5/17/2002
R/W PERMIT NO. 01107942

WETLAND MITIGATION PLAN
VILLAGE AT WEBSTER'S POND

PLANT SCHEDULE & PLANTING DETAILS

STAFFORD HOMES, INC.
16016 - 118TH PLACE N.E.
BOTHELL, WASHINGTON 98011
(425) 488 2222

CSS
COOKE SCIENTIFIC SERVICES INC.
919 NE 71ST ST.
SEATTLE, WA 98115
PH: 206-525-5105
FAX: 206-525-5351

Date: 9-22-00 | Designed by: D.N.C. | Drawn by: W.T.T. | Checked by: D.N.C.

REVISIONS
Grading 10/23/00 DC
Plant # 10/25/00 DC

SHEET 6 OF 8

HDW-2412

Landscape Installation Specifications

This specification section includes labor, equipment, and all materials necessary for the landscaping as shown on the Contract Drawings. The Contract will be based on the bidder having verified, prior to bidding, all sources of supply to ensure that all of the plants listed in the plant schedule, of the size, species, variety and quality noted and specified, can be supplied. Failure to take this precaution may result in the Owner procuring the items and the Contractor being held liable for all costs for furnishing and installing the plants in accordance with the Contract requirements. The location and quantities of plants proposed may be modified based on field conditions. The Wetland Mitigation Plan report prepared by Cooke Scientific Services, Inc. shall be considered as part of these specifications. In these specifications, when reference is made to the Owner's Representative, it is intended to mean the project Wetland Ecologist.

GENERAL CONDITIONS

I. Submittals

A. Before starting any planting work, the Contractor shall submit a work plan for approval by the Owner's Representative. The plan shall define the work necessary to provide all contract requirements. The plan shall show the proposed scheduling of activities and materials and equipment to be utilized for the project. No on-site work shall begin until the plan is approved.

B. Materials list: Within 35 days after execution of the Contract, and before any planting materials are delivered to the job site, submit to the Owner's Representative a complete list of all plants and other items to be installed.

1. Make submittal in accordance with these specifications.

2. Include complete data on source, size and quality.

3. This submittal shall in no way be construed as permitting substitution for specific items described in the drawings or these specifications unless the substitution has been approved in advance by the Owner's Representative.

C. Certificates: All certificates required by law shall accompany shipments. Upon completion of the installation and prior to final inspection, deliver all certificates to the Owner's Representative.

D. Provide plant material "as-built" drawings.

1. During the course of the installation, legibly record in red-line on a print of the planting drawings all changes made to the planting system layout referenced to permanent surface improvements. Provide plant material record drawings showing actual construction indicating horizontal and vertical locations. Submit the red-line drawing to the Owner's Representative prior to final inspection.

2. Identify field changes of dimension and detail and changes made by Change Order.

E. The Contractor shall submit samples of compost, plant fertilizers and written maintenance instructions recommending proper procedures for maintenance of plant materials.

II. Deliver, Storage, and Handling

A. Deliver fertilizers in original, unopened and undamaged containers that list weight, analysis and name of manufacturer. Store in such a manner as to prevent wetting and deterioration. Take all precautions customary in good trade practice in preparing plants for transplanting. Workmanship that fails to meet the highest standards will be rejected. Spray deciduous plants in foliage with an approved "Anti-Desiccant" immediately after digging to prevent dehydration. Dig, pack, transport and handle plants with care to ensure protection against injury. Inspection certificates required by law shall accompany each shipment invoice or order to stock and on arrival, the certificate shall be filed with the Owner's Representative. No plant shall be bound with rope or wire in a manner that could damage or break the branches. Cover plants transported on open vehicles with a protective covering to prevent wind burn.

B. Store plants in a manner necessary to accommodate their horticultural requirements. Protect all plants from drying out. If plants cannot be planted immediately upon delivery, properly protect them with soil, wet peat moss or in a manner acceptable to the Owner's Representative. Water plants as required to keep moist. Do not allow plants to dry out or sit in the sun prior to or during installation.

C. When authorized by the Owner's Representative, plants may be temporarily stored at the sole responsibility of the Contractor. Plants in storage shall be protected at all times from extreme weather conditions. All plants that must be stored longer that one (1) month shall be planted in nursery rows and maintained by the Contractor at no additional cost to the Owner. Plants temporarily stored shall be subject to inspection and approval by the Owner's Representative prior to planting.

D. Immediately remove from the site all plants which are not true to name and all materials which do not comply with the provisions of this specification section.

III. Tests and Inspections

A. Prior to plant installation soil samples will be taken to determine the existing soil's suitability as a planting medium. Samples will be submitted to an approved testing lab. Data from testing lab shall include percentage of organic content as determined by incineration process and recommendations on type and quality of additives required to establish satisfactory ph factor, organic content and supply of nutrients to bring the soil to a satisfactory level for the planting of native material. Recommendations will be made regarding the need for soil amendments based on test results. The Contractor must obtain these recommendations from the Owner's Representative and develop a program for amending the soil as required. This program must be approved by the Owner's Representative before plant material installation begins.

B. Notify the Owner's Representative if any undesirable conditions are met during construction so that supplemental recommendations can be made.

IV. Protection: Prevent damage to existing vegetation, pavement, utility lines, areas to receive planting and other features remaining as part of final landscaping.

V. Quality Assurance

A. Comply with all applicable federal, state, and local codes and safety regulations. If there are any conflicts among referenced standards, the more stringent requirements shall govern.

B. Plant names indicated comply with "Standardized Plant Names" as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties not listed conform generally with names accepted by the nursery trade. Provide stock true to name and legibly tagged.

C. Comply with sizing and grading standards of the latest edition of "American Standard for Nursery Stock." A plant shall be dimensioned as it stands in its natural position.

D. All plants shall be nursery grown under climatic conditions similar to those in the project locale for a minimum of two years or transplanted on-site. All potted plants shall be grown in the containers in which they are sold for a minimum of six months or a maximum of two years.

E. Stock furnished shall be at least the minimum size indicated. Larger stock is acceptable, at no additional cost, providing that the larger plants will not be cut back to size indicated. Provide plants indicated by two measurements so that only a maximum of 25% are of the minimum size indicated and 75% are of the maximum size indicated.

F. Plants may be inspected and approved at the place of growth, for compliance with specification requirements for quality, size and variety. Such approval shall not impair the right of inspection and rejection upon delivery at the site or during the progress of the work.

G. Qualifications of Workmen: Provide at least one person who shall be present at all times during the execution of the work and who shall be thoroughly familiar with the type of materials being installed and the best methods for their installation and who shall direct all work performed under these specifications. The person shall have a minimum of 5 years experience installing native plant materials particularly for wetland enhancement and buffer enhancement projects.

VI. Project Conditions

A. Notify Owner's Representative at least 10 days prior to installation of the plant material.

B. The limits of work within the wetland mitigation area shall be clearly marked with standard orange construction fencing. These limits shall be observed throughout the construction phase. No disturbance will be allowed beyond the wetland mitigation area.

C. A complete list of plants, including a schedule of sizes, quantities and other requirements is shown on these Contract Drawings. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern.

D. Remove all weedy species such as reed canarygrass, Scott's broom, and blackberry as directed by the Owner's Representative.

VII. Warranty

A. Warrant trees, shrubs and groundcovers to remain alive and be in healthy, vigorous condition for a period of one growing season after completion and acceptance of the entire project. A growing season shall be defined as occurring from spring to spring. If the project is installed in fall, the growing season will begin the following spring. Inspection of the plants will be made by the Owner's Representative at the completion of planting. The Contractor shall warrant plants against defects including death and unsatisfactory growth, except for defects resulting from negligence by the Owner, abuse or damage by others or unusual phenomena or incidents beyond Contractor's control.

B. At the end of the warranty period replace, in size and kind and in accordance with the Contract Drawings and these Specifications, all plants that are dead or, as determined by the Owner's Representative, in an unhealthy or unsightly condition, or have lost their natural shape due to dead branches or other causes due to the Contractor's negligence. Such replacement(s) will be at the Contractor's expense. Warrant all replacement plants for 60 days after installation.

C. Warranty shall not include damage or loss of trees, plants or groundcovers caused by fires, unusual floods, freezing rains, lightning storms, winds over 75 miles per hour or other extreme "Acts of Nature." Winter kill caused by extreme cold and severe winter conditions not typical of planting area, unanticipated acts of vandalism or negligence on the part of the Owner and damage caused by wildlife, shall not be covered under this warranty.

D. Remove and immediately replace all plants determined by the Owner's Representative to be unsatisfactory during the initial planting installation.

MATERIALS

I. Plant Materials

A. All plant materials shall be native to the Northwest and preferably the Puget Sound region. Plant material shall be from native stock, no cultivars or horticultural varieties will be allowed.

B. Plant material shall be from nursery grown stock, unless otherwise approved by the Owner's Representative.

C. The requirements of all nursery grown plant material are identified in the plant schedule and shall be bare root, containerized, or balled and burlapped. Proposals for substitution require the approval of the Owner's Representative. Provide plants typical for their species or variety with normal, densely developed branches and vigorous, fibrous root systems. Provide only sound, healthy, vigorous plants free from defects, disfiguring knots, sun scald injuries, frost cracks, abrasions of the bark, plant diseases, insect eggs, borers and all forms of infestation. All plants shall have a fully developed form without voids and open spaces.

1. Dig balled and burlapped plants with firm, natutal balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Protect roots from exposure until they are planted. Plants with roots dried or shriveled from exposure are not acceptable. Provide ball sizes complying with the latest edition of the "American Standard for Nursery Stock." Cracked or mushroomed balls are not acceptable.

2. Container-grown stock: Shall have been grown in its delivery container for not less than six months but no more than two years with root system sufficiently developed to hold its soil together, firm and whole. Samples selected at random by the Owner's Representative, shall not exhibit rootbound conditions, and plants with broken balls of earth shall not be used in the work unless the Contractor has obtained written permission from the Owner's Representative. Under no circumstances shall container stock be handled by their trunks, stems, or tops.

3. Bare root stock shall be dug and the earth removed without injury to fibrous root system necessary for full recovery of the plant. Cover roots with thick mud coating by puddling and / or wrapping in wet straw, moss or other suitable packing material immediately after digging. Keep plant protected until time of planting. Plants with roots dried from exposure will not be accepted.

4. Plants larger than those specified in the plant list may be used when acceptable to the Owner's Representative. If the use of larger plants is acceptable, increase the spread of roots or root ball in proportion to the size of the plant.

5. The height of the trees, measured from the crown of the roots to the top of the branch, shall not be less than the minimum size designated in the plant list.

6. No pruning wounds shall be present with a diameter of more than 1 inch and such wounds must show vigorous bark on all edges.

7. Coniferous and Broadleafed Evergreens: Provide evergreens of sizes shown or listed on these Contract Drawings. Provide evergreens with well-branched form and branched to the ground complying with requirements for other size relationships to the primary dimension shown. Provide balled and burlapped evergreens. Container grown evergreens will be acceptable subject to specified limitations of container grown stock. Double-trunked trees will not be accepted.

8. Deciduous Trees: Provide trees of height and caliper per plant schedule. Provide single stem trees except where special forms are shown or listed. Provide balled and burlapped (B&B) deciduous trees. Container grown stock will be accepted subject to specified limitations of container grown stock.

9. Shrubs and small plants shall meet the requirements for spread and height indicated in the plant schedule.

a. The measurements for height shall be taken from the ground level to the average height of the plant and not to the tallest branch.

b. Single stemmed or thin plants will not be accepted.

c. Side branches shall be generous and well twigged and the plant as a whole well-bushed to the ground.

d. Plants shall be in a moist, vigorous condition, free from dead wood, bruises or other root or branch injuries.

II. Planting Mulch: Mulch shall be Cedar Grove Pure Compost or equal. Sterile wheat straw for spring plantings or clean recycled wood chips approximately 1/2 - 1" in size and 1/2" thick for fall plantings may be used as a substitute for the Cedar Grove Pure Compost. This substitution requires the approval of the Owner's Representative. No bark dust, bark chips, or bark products of any kind will be allowed in the wetland mitigation area.

III. Hydroseed Products

A. Mulch shall be Silva-fiber as manufactured by Weyerhauser Co., or approved equal and shall be degradable green dyed wood cellulose fiber or 100% recycled long fiber pulp, free from weeds or other foreign matter toxic to seed germination and suitable for hydroseeding.

Rate: 2,000 lb./acre

B. Seed shall be supplied by a dealer regularly in the business of supplying seeds and generally known locally. Seeds shall be machine mixed and delivered to the job site in unopened packages, plainly marked with the supplier's printed label showing his name and the contents. Seed shall be composed of the varieties identified in the plant schedule, mixed to the weight and tested to minimum percentages of purity and germination. Seed mixes and application rates will be determined by the Project Wetland Ecologist.

C. Fertilizer shall be of organic components which are easily assimilated by plant life and appropriate for this application. Laboratory analysis of the material shall be submitted to the Owner's Representative for approval before application. Fertilizer shall be 10-10-20; applied at 320 lbs./acre in those areas that are to be hydroseeded.

D. Tackifier: Liquid concentrate diluted with water forming a transparent 3-dimensional film-like crust permeable to water and air, and containing no agents toxic to seed germination. Apply tackifier at rates equivalent or greater than those specified by the manufacturer.

E. Water: Free of substances harmful to plant growth. Hose, truck, or other method of transportation shall be furnished by the Contractor.

IV. Topsoil

A. Topsoil that has been stockpiled shall be placed to a depth of 24" inches throughout areas within the wetland scheduled for earthwork. The soil shall be amended as recommended by the Wetland Ecologist. If additional topsoil is needed, it shall be an amended commercial product. The depth of topsoil to be removed and stockpiled shall be the organic rich soil above existing clay or till.

B. Topsoil shall be naturally occurring surface topsoil with a minimum sand content of 60 percent, shall have no rocks or debris over 2 inches, and shall have an acidity range of between pH 5.0 and 6.5, and an organic matter content of 10 percent by dry weight. Add dolomite limestone, if required, to obtain pH range of 5.0 to 6.5. Limestone, if used, shall be finely ground, passing a minimum of 90% through the U.S. No. 8 sieve and 20% through U.S. No. 100 sieve. Add approved nutrients, if required to a satisfactory level for planting as recommended by a qualified testing laboratory (exclude nitrogen, potassium and phosphorus.)

C. Soil from excavated planting pits shall be mixed with organic compost in a ratio of 1/3 organic compost (Cedar Grove Compost or equal) to 2/3 soil.

D. Excess soil shall be disposed of as per the instructions of the Owner's Representative.

V. Soil Amendments

A. Install transplanter type fertilizer to all plant pits in the upland planting areas such as Agro Plant Tabs or equal. Application rates shall be as specified by manufacturer. Install a granular type fertilizer into the planting pits of all other material. The composition and application rate must be approved by the Owner's Representative prior to installation. Fertilizer will be allowed in planting pits only.

B. Additional soil amendments may be required as a result of soil test results. The Owner's Representative will be responsible for identifying the necessity for additional soil amendments.

VI. Landscape Accessories

A. Stakes and guys shall be made from new hardwood, treated softwood or redwood, free of knot holes and other defects. Provide plastic interlocking ties and guying hose as shown in the planting construction details for coniferous and deciduous trees.

B. Anti-Desiccant: Protective film emulsion providing a protective film over plant surfaces, permeable to permit transpiration; mixed and applied in accordance with manufacturer's instructions.

INSTALLATION

I. Inspection

A. The Contractor is responsible for examining the proposed planting areas and conditions of installation. Do not start planting work until unsatisfactory conditions are corrected and approved by the Owner's Representative.

B. All material must be inspected by the Owner's Representative prior to planting. Plants may be inspected and approved at the place of growth, for compliance with specification requirements for quality, size, and variety. When requested by the Owner's Representative, provide sales receipts for all nursery stock and certificates of inspection from all Federal, State, and local authorities.

C. The Owner's Representative reserves the right to refuse any/all plant material which does not meet the requirements of the drawings and specifications at any time prior to final acceptance. Remove rejected plant material immediately from the site.

D. Such approval shall not impair the right of the inspection and rejection upon delivery at the site or during the progress of the work.

E. No materials substitution shall be made without the written approval of the Owner's Representative.

PFN#: 98-108094
SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
(OR GRADING IN THE CASE OF GRADING PERMITS)
BY [signature] 10/7/2002
R/W PERMIT NO. 01021947

WETLAND MITIGATION PLAN
VILLAGE AT WEBSTER'S POND

LANDSCAPE INSTALLATION SPECIFICATIONS

STAFFORD HOMES, INC.
16016 - 118TH PLACE N.E.
BOTHELL, WASHINGTON 98011
(425) 488 2222

CSS
COOKE SCIENTIFIC SERVICES INC.
919 NE 71ST ST.
SEATTLE, WA 98115
PH: 206-525-5105
FAX: 206-525-5351

REVISIONS

Date: 9-19-00
Designed by: G.G.C.
Drawn by: W.T.T
Checked by: G.G.C

SHEET 7 OF 8

HDW-2413

LANDSCAPE INSTALLATION SPECIFICATIONS CONTINUED

II. Preparation

A. Time of planting:

1. To assure greater survival of newly planted material an autumn planting (Oct. - Dec.) is recommended. Installation at this time will also minimize the impacts of erosion and sedimentation resulting from construction operations. **Spring planting (March - April) will require an irrigation program throughout the summer season. The program shall be developed by the Contractor and approved by the Owner's Representative.**

2. Bare root material: Plant bare root material between November 1 and March 1.

3. Planting shall not be done during freezing weather or when conditions are unfavorable to work.

4. Seeding shall occur immediately after weedy species eradication. Seeding will not be allowed between Oct. 1 and April 1.

B. No planting activities shall commence until completion of site preparation and earth work.

C. All planting and site preparation operations shall be conducted according to the American Nurseryman Associated Guidelines.

D. Locate plants as indicated or as approved by the Owner's Representative in the field after staking by the Contractor. If obstructions are met that are not shown on the Contract Drawings, do not proceed with planting operations until alternative plant locations have been selected or approved by the Owner's Representative. The Owner's Representative shall reserve the right to adjust the locations of landscape elements during the installation as appropriate to the job.

III. Weedy species eradication: Selective removal of blackberry and other invasive species as identified by the project Wetland Ecologist shall be conducted as outlined in the Wetland Mitigation Plan report prepared by Cooke Scientific Services, Inc. and these specifications (see General Conditions Section VI.D.)

IV. Placement of Topsoil

A. Stockpile topsoil as directed by the Owner's Representative. Location and construction of the stockpile shall be described in the Contractor's work plan and approved by the Owner's Representative prior to proceeding with earthwork.

B. Prior to placing topsoil in stockpile, the Contractor shall mow the area to be excavated. A type 1 or type 2 geotextile shall be placed on the ground where the topsoil is to be stockpiled.

C. No mixing of soil types shall be allowed.

D. The stockpile shall be no more than 20 feet in height above existing ground surface. The maximum side slope steepness shall be 4 horizontal to 1 vertical (4H:1V).

E. When removing topsoil from the stockpile, the Contractor shall only take topsoil from above the geotextile. No topsoil is permitted from below the geotextile.

F. Over excavate areas proposed for earthwork as directed by the Project Engineer and the Project Wetland Ecologist. Over excavated areas shall then be backfilled with stockpiled topsoil to a minimum depth of 24" to achieve the final design elevations shown on the Drawings. The topsoil shall be track walked.

G. At the completion of topsoil placement work, the Contractor shall dispose any remaining stockpiled topsoil off site. The geotextile shall be removed and disposed of off site.

V. Plant Installation

A. Plants shall be installed per the wetland mitigation planting plan following accepted procedures as outlined in these specifications and current industry standards.

B. Trees, shrubs, and groundcovers shall be planted as shown by the planting details on the Drawings.

C. Do not remove container grown stock from containers until the planting time. Containerized plants shall be removed from their containers in such a manner to prevent disturbances to the root system. Under no circumstances shall the plant be removed from the container by pulling the main stem. Plants removed from their containers shall be planted without delay. Plants shall be protected at all times to prevent the roots from drying out during the planting operation. Prune any broken roots with a sharp instrument and thoroughly soak rootballs prior to installation.

D. Excavate circular planting pits with vertical sides and install plants as shown in the planting details. Remove existing sod from individual planting pits and waste spoils off site in areas where no earthwork is proposed. Provide shrub pits at least 12" greater than the diameter of the root system and 24" greater for trees. Depth of pit shall accommodate the root system plus 6". Scarify the bottom of the pit to a depth of 4" Roughly scarify sides of planting pit. Set plants upright, plumb, and faced to give the best appearance or relationship to each other. Set plant material in the planting pit to proper grade and alignment, as shown on the planting details and 2 to 3 inches above the finish grade. Water plant pits thoroughly midway through backfilling and add specified fertilizer. Water again upon completion of backfilling. Filling will not be permitted around trunks. Backfill excavated pits with native soil and amendments as required in the specifications and planting details. Do not use frozen or muddy mixtures for backfilling. Form a ring of soil around the edge of each planting pit to retain water. Plant material which settles from an upright position during construction and warranty period shall be repositioned or replaced as required. Provision shall be made to allow drainage of excess water from ponding in planting pits to an approved source, if soil conditions are such that free drainage is not possible.

E. After balled and burlapped plants are set, remove all burlap, ropes, and wires from the top half of the rootballs. Dispose of the lose materials outside the project area.

F. A three inch layer of mulch shall be applied to the circle of bare earth around individual plantings to inhibit competition from herbaceous plants. Mulch shall be Cedar Grove Pure Compost or equal. Feather mulch away from crowns of trees and shrubs. Smaller shrubs shall be mulched in mass to prevent competition with herbaceous plants.

G. Install transplanter type fertilizer to all plant pits in the upland planting area. Application rates shall be specified by manufacturer. Install granular type fertilizer into the planting pits of all material in the wetland enhancement planting area. The composition and application rate must be approved by the Owner's Representative. Fertilizer will be allowed in planting pits only.

H. Staking

1. Stake all trees prior to acceptance. When high winds or other conditions which may affect tree survival or appearance occur, the Owner's Representative may require immediate staking. Contractor shall remove all stakes at the end of the warranty period. Replacement plants in place less than 60 days shall remain staked. The stake shall not penetrate the rootball or burlap.

2. Stake deciduous trees under 3" caliper. Stake evergreen trees under 8'-0" tall.

3. Guy deciduous trees more than 3" in caliper. Guy evergreen trees over 8' tall.

4. Each guy wire shall be conspicuously flagged with bright colored survey tape to increase its visibility.

5. All work shall be accomplished in a manner acceptable to the Owner's Representative.

I. Pruning:

1. Prune new plant materials only as directed by the Owner's Representative.

2. Remove or cut back broken or damaged growth of new wood.

a. Multiple leader plants: Preserve the leader that will best promote the symmetry of the plant. Cut branches to branch collar and branch bark ridge.

b. Prune evergreens only to remove broken or damaged branches.

J. Fertilizer / Amendments:

1. Agroform plant tabs per manufacturer's recommended application rates in planting pits of all upland plant material.

2. Granular type fertilizer per manufacturer's recommended application rates in planting pits of wetland creation area.

3. Additional soil amendments shall be incorporated into the individual planting pits based on the results of soil testing and recommendations from the Owner's Representative.

K. Mulching: All trees and shrubs shall be mulched with a 3" layer of mulch immediately after planting. This mulch shall entirely cover the area of the planting pit, or saucer around each plant.

L. Watering: The Contractor is responsible for watering newly installed plant material to ensure survivability. Plant material will need to be watered twice within the first 24 hours after installation. A watering program throughout the growing season shall be developed by the Contractor and must be approved by the Owner's Representative.

VI. Hydroseeding

A. Preparation of the areas to be seeded shall comply with the applicable portions of the paragraph 8-01.3(8) of the Washington State Department of Transportation Standard Specifications. Seeded areas shall include all areas within the Mitigation Site where earthwork is proposed. Correct unsatisfactory surfaces and conditions prior to commencement of application. Limit preparation to areas which will be immediately seeded. Bring surfaces to finish grades as shown on the Drawings. Surfaces to be free of debris, dead plant materials, etc. Restore prepared areas to specified condition if eroded, settled, or otherwise disturbed after fine grading and prior to seeding.

B. Seeding: Notify Owner's Representative not less than 24 hours in advance of any seeding operation and do not begin work until areas prepared or designated for seeding have been approved. Following the Owner's Representative's approval, immediately begin seeding and fertilizing of the approved areas. Unless otherwise approved, accomplish seeding between April 1 and October 1. do not perform seeding during windy weather or when the ground is frozen. Place the seed and fertilizer at the rate and mix specified herein or as directed by the Owner's Representative. Seed and fertilizer may be sown by one of the following methods.

1. An approved-type hydroseeder which utilizes water as the carrying agent and maintains a continuous agitator action that will keep seed and fertilizer mixed in a uniform distribution until pumped from the tank. Pump pressure shall be such as to maintain a continuous, non-fluctuating stream of solution.

2. Approved blower equipment with an adjustable dissemination device capable of maintaining a constant measure rate of material discharge that will ensure an even distribution of seed and fertilizer at the rates herein specified.

3. Approved hand methods. Distribution of the material shall be uniform and at the rates specified.

4. It shall be the Contractor's responsibility to provide personnel experienced in the seeding and fertilizing operation, equipment and methods herein specified.

C. Slurry: Job-mix slurry, in specified proportions using commercial mixing equipment, add cellulose mulch to slurry tank after other dry components.

D. Spraying: At all locations, spray slurry, using commercial hydroseeding equipment to achieve a uniform visible coat, distributing over the entire hydromulch-seeding area in specified proportions. Avoid covering trees, shrubs, and ground cover with the slurry.

E. Seeding rate shall be specified by the Wetland Ecologist.

F. Do not operate equipment over areas that have been hydroseeded.

VII. Protection: Protect all plantings against harm from wind, unusual weather and the public. Special planting techniques, defoliating, wilt-proofing, or spray-misting may be required by the Owner's Representative for unseasonable planting, prolonged periods of drought, etc. Do not work in, over, or adjacent to planting areas without proper protections and safeguards.

VIII. Plant Establishment Period: Maintenance of landscaping installed as part of this Contract is fully the responsibility of the Contractor during the plant establishment period.

A. The Contractor shall maintain plantings for a period of one growing season after completion of planting operations. A growing season shall be defined as occurring from spring to spring. If the project is installed in the fall, the Contractor shall maintain planting for one year after the spring following installation.

B. During the plant establishment period, it shall be the Contractor's responsibility to ensure the continued growth of all plant materials. This care shall include, but not be limited to the following: labor and materials necessary for watering, pruning, cultivating, weeding, and removal of foreign materials, dead or rejected plant materials and lawn. Maintenance requirements also include the replacement of all unsatisfactory plant materials planted under this Contract in kind and size; and fertilizing to maintain a healthy growing condition and visually pleasing site. All dead plant materials shall be replaced within (30) days of discovery.

1. Re-set settled plants to proper grade and position. Restore planting saucer, mulch, and adjacent grade. Remove all dead material.

2. Tighten and repair guy wires and stakes as required.

3. Correct defective work as soon as possible after deficiencies become apparent and weather and season permit.

4. The Contractor shall be responsible for watering plants during the Warranty Period. Watering schedule throughout the Warranty Period must be approved by the Owner's Representative.

5. At the end of the Warranty Period, all plant material shall be in a healthy growing condition.

6. During the warranty period, should the appearance of a plant indicate weakness and possibility of dying, immediately replace that plant with a new and healthy plant of the same type and size without additional cost to the Owner.

7. Extension of maintenance requirements beyond the warranty period shall continue at no additional cost to the Owner until all previously noted deficiencies in maintenance have been corrected.

8. Provide maintenance reports to Owner's Representative monthly, indicating procedures, fertilizing, defective material, etc.

IX. Acceptance

A. In addition to normal progress inspections, schedule and conduct the following formal inspections, giving the Owner's Representative at least 48 hours prior notice of readiness for:

1. Inspection of plants in containers prior to planting.

2. Inspection of plant locations, to verify compliance with the Contract Drawings.

B. Inspection to determine acceptance of planted areas will be made by the Owner's Representative, upon Contractor's request. Provide notification at least 10 working days before requested inspection date.

1. Preliminary acceptance of the planted areas will occur at the end of installation. Preliminary acceptance will be granted provided the plant material has been installed correctly, site cleaning has been completed, and watering requirements have been addressed.

2. Final inspection will occur at the end of the warranty period. Final acceptance will be granted provided all requirements including maintenance, have been complied with and plant materials are alive in a healthy, vigorous condition.

C. Upon one year after Substantial Completion, the Owner will assume plant maintenance.

X. Cleaning: During landscape work, keep pavements clean and work area in an orderly condition. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, soil, debris and equipment as instructed by Owner's Representative. Repair damage resulting from planting operations.

XI. **Bond Information: This is based on the final wetland mitigation plan.**

Planting materials and installation	**$125,112**
Mulch	**$1,280**
Hydroseed	**$34,848**
Plant Installation Costs Subtotal	**$161,240**
Irrigation (temporary; first 2 years)	**$28,800**
Maintenance of mitigation area (weeding, etc.) @ $1,000 per acre per year, 2 times per year	**$80,000**
Annual monitoring over a 5-year period	**$51,000**
Total Estimated Cost	**$321,040**
Performance Bond Total Estimated Cost x 120%	**$325,248**

XII. Performance Standards: Performance standards, or success criteria, are proposed for the Village at Webster's Pond site to achieve the wetland mitigation goals and objectives.

A. 80 percent survival of planted woody species by year five.

B. Development of scrub-shrub communities with sufficient density (a minimum of 80 percent cover) by year 5 and canopy development over time. Canopy development may take up to 20 years, but an evaluation will be done in shrub and forested portions of the plan, by year 5, to determine if the plants present will develop a multiple-canopy plant community.

C. Establishment of a minimum of 80 percent plant cover throughout by native plants with not more than 15 percent of the cover consisting exotic and/or invasive species in the wetland and buffer areas. Exotic and invasive species may include, but are not limited to the following: reed canarygrass, purple loosestrife (*Lythrum salicaria*), Japanese knotweed (*Polygonum cuspidatum*), non-native blackberry (*Rubus armeniacus*), holly (*Ilex aquifolium*), bird's-foot trefoil (*Lotus corniculatus*), and English ivy (*Hedera helix*).

D. Maintenance of hydroperiod characteristics that will support stable diverse vegetation communities over time. This includes different topographic features that support varying amounts of water such as shallow pools and hummocks that support different community types as documented by he presence of emergent, scrub-shrub, and forested communities.

E. Establishment of habitat for amphibians, birds, and small mammals as documented by observations of the presence of these animals.

F. Attain increased functional performance in the enhanced wetland compared to impacted wetlands using the Wetlands and Buffers Semi-Quantitative Assessment Method (Cooke 2000).

G. Achieve wetland area of a minimum of 2.1 acres by year 5 as determined by wetlands delineation and survey that can be confirmed by all regulatory agencies.

XIII. Monitoring: Monitoring will occur in August of each year and reports will be submitted by September 30 of each monitoring year. Monitoring will consist of the tasks listed below.

A. Vegetation Sample Plots. Monitoring involves the establishment of a baseline transect along the western edge from north to south. Four perpendicular transects are run from this baseline through the main mitigation area (two in the southern lobe, two in the northern lobe. Circular 5-meter sample plots, located along these transects, are established throughout the restoration area at an average interval of 50 feet to include all the vegetation community types designed and found within the mitigation. The center of each plot is marked with both a short stake and a 3-foot lath topped with pink flagging and numbered so that they can be easily located in successive years.

B. Vegetation Assessment. The vegetation communities in the sample plots are described in terms of species composition, percent cover, and health. Plots are sampled in each area of uniform vegetation type and in the transition zones between different community types. The assessment is performed as follows:

1. The vegetation community type is determined by the dominant vegetation species. Circular plots are established with the plot size dependent on the community type. A five-meter radius circle is used for communities dominated by shrubs or large emergent plants.

2. The plant species present in each circular plot are recorded. A visual estimate of the percent cover of each species is recorded as a cover class estimate. The cover class system used for this study is a nine increment scale known as the Octave Scale (Gauch, 1982), which enables close observation of small changes in vegetation cover. The vegetation data tables are located in Appendix A.

The Octave Scale (Gauch, 1982) for the cover classes is listed below:

	0 = single individual		1 = .5%
2 = .5-1%	3 = 1-2%	4 = 2-4%	5 = 4-8%
6 = 8-16%	7 = 16-32%	8 = 32-64%	9 = >64%

3. Plantings are visually evaluated to determine survival, health, and vigor of plant species. Water or drought stress, mineral deficiencies, and other stressors are identified.

4. Photopoints are established in 10 locations marked by permanent stakes, as in the vegetation plots. Photographs that cover the entire area of the restoration will be taken from the same locations each monitoring season to document appearance, progress, and changes in the vegetation.

5. A functional evaluation is performed using the SAM Method (Cooke 1997) on the wetland in years 1, 2 and 5, after installation.

6. Invasive plant species are identified in and around the mitigation in addition to those recorded during the sample plot assessment.

C. Hydrologic Monitoring.

1. Establish shallow groundwater wells in both the southern and northern mitigation lobes. The number of wells that will be installed will be determined during the baseline monitoring.

2. Monitor the projected water levels with crest stage gauges at the southern inlet and the northern outlet.

PFN#: 98-108094

SNOHOMISH COUNTY
PLANNING AND DEVELOPMENT SERVICES
APPROVED FOR CONSTRUCTION
(OR GRADING IN THE CASE OF GRADING PERMITS)
BY Randal W. Sleight 10/10/2000
R/W PERMIT NO. 01101941

WETLAND MITIGATION PLAN
VILLAGE AT WEBSTER'S POND

LANDSCAPE INSTALLATION SPECIFICATIONS

STAFFORD HOMES, INC.
16016 - 118TH PLACE N.E.
BOTHELL, WASHINGTON 98011
(425) 488 2222

CSS
COOKE SCIENTIFIC SERVICES INC.
919 NE 71ST ST.
SEATTLE, WA 98115
PH: 206-525-5105
FAX: 206-525-5351

Date: 9.13.00
Designed by: D.C.C.
Drawn by: W.T.T.
Checked by: D.C.C.

REVISIONS
6/4/01 Cat-6 Stk.
Added fence at prop. Corn
10/8/01 esit - CSS Inc.
revised bnd w/for mation

SHEET 8 OF 8

HDN-2414