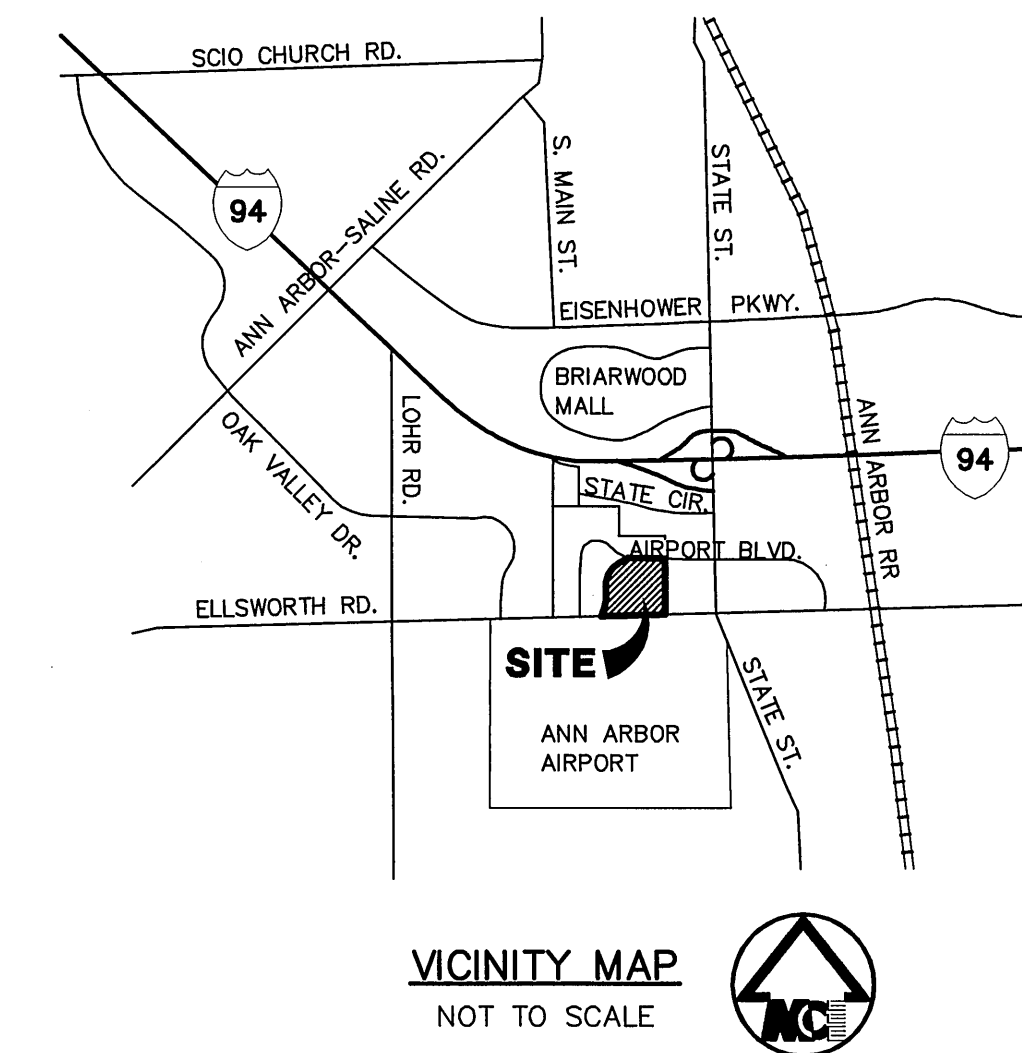


COSTCO

SECTION 8, T3S, R6E, PITTSFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN

REZONING AND PRELIMINARY SITE PLAN



SURVEYOR/ENGINEER
MIDWESTERN CONSULTING LLC
3815 PLAZA DR.
ANN ARBOR, MI 48108
TEL: (734) 995-0200
CONTACT: EARL OPHOFF

DEVELOPER
COSTCO WHOLESALE
C/O TJ DESIGN STRATEGIES, LTD
2311 W. 22nd ST.,
SUITE 208
OAK BROOK, IL 60523
TEL: (630) 368-0840
CONTACT: TED JOHNSON

FUTURE OWNER
COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WA 98027

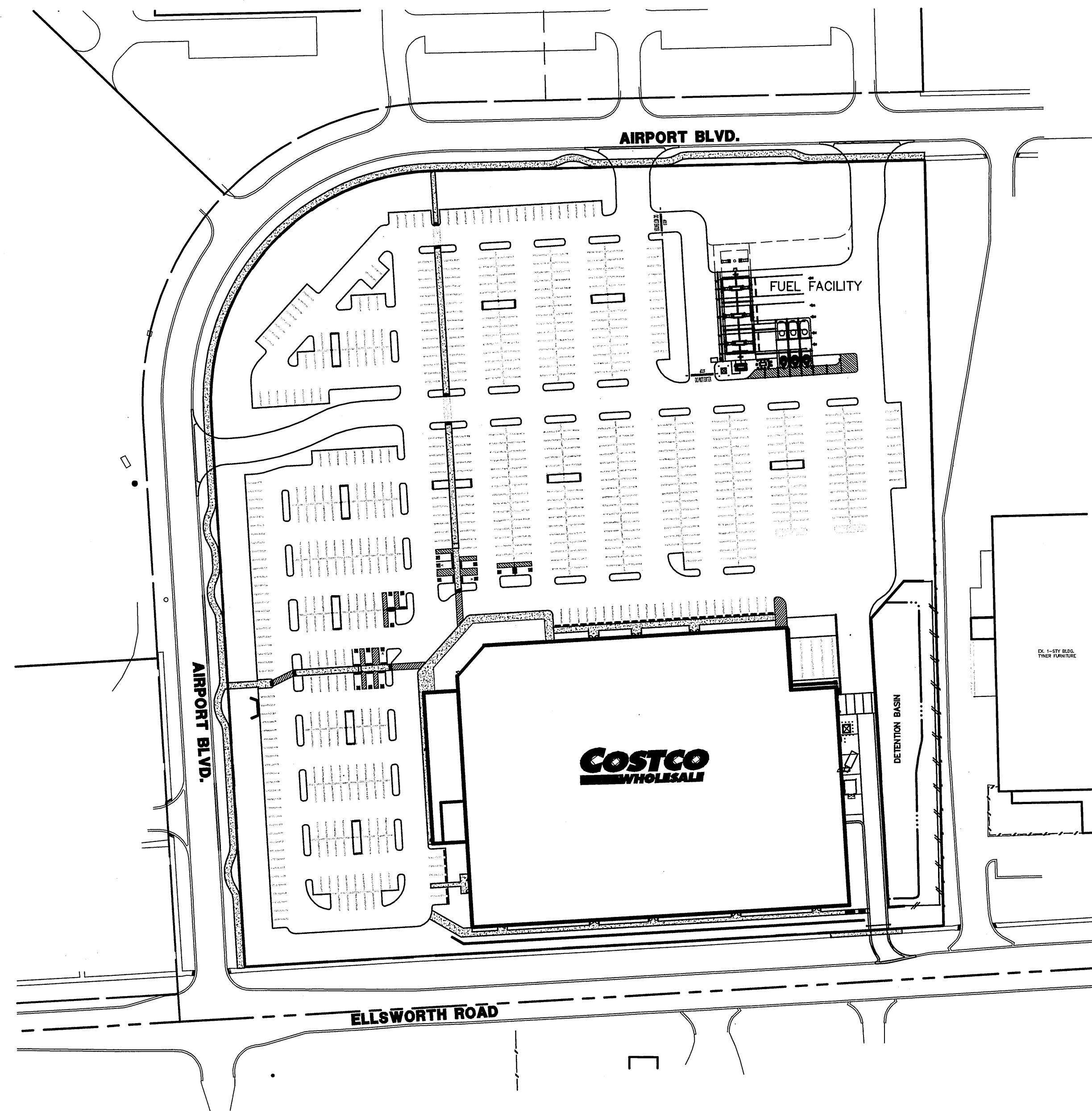
RECORDED PROPERTY OWNER
AIRPORT BOULEVARD ASSOCIATES
3784 PLAZA DRIVE
SUITE 1
ANN ARBOR, MI 48104
TEL: (734) 769-6781

ARCHITECT
MULVANNY G2
1110 112th AVE.,
SUITE 500
BELLEVUE, WA 98004
TEL: (425) 463-2000
CONTACT: RISA YUKI

LANDSCAPE ARCHITECT
JJR
110 MILLER
ANN ARBOR, MI 48104
TEL: (734) 662-4457
CONTACT: CAROL SCHULTE

SHEET INDEX

- 1 COVER SHEET
- 2 OVERALL SITE PLAN
- 3 EXISTING CONDITIONS, NATURAL FEATURES AND REMOVAL PLAN - SOUTH
- 4 EXISTING CONDITIONS, NATURAL FEATURES AND REMOVAL PLAN - NORTH
- 5 ELEVATIONS & SIGNAGE DETAIL
- 6 PHOTOMETRICS
- 7 LANDSCAPE - SOUTH
- 8 LANDSCAPE - NORTH
- 9 TREE INDEX AND STRUCTURE SCHEDULES
- 10 DIMENSIONAL SITE PLAN - SOUTH
- 11 DIMENSIONAL SITE PLAN - NORTH
- 12 UTILITY PLAN - SOUTH
- 13 UTILITY PLAN - NORTH
- 14 FIRE PROTECTION PLAN - SOUTH
- 15 FIRE PROTECTION PLAN - NORTH
- 16 GRADING PLAN - SOUTH
- 17 GRADING PLAN - NORTH
- 18 DRAINAGE AREA & STORM WATER MANAGEMENT PLAN
- 19 AREA WIDE PLAN
- 20 WB-50 TRUCK TURNING PLAN



OVERALL SITE
SCALE: 1"=100'

DEVELOPMENT SUMMARY

	REQUIRED/PERMITTED	PROPOSED
GROSS/NET LOT AREA	NO MINIMUM	17.08 AC/743,915 SF
MINIMUM LOT WIDTH		
ZONING	PUD	PUD
PROPOSED USE		Costco Warehouse
GROUND FLOOR AREA		148,489 SF
FLOOR AREA RATIO-FAR	35%	20%
LOT COVERAGE (NET)	25%	20%
BUILDING HEIGHT	NO REGULATIONS	34' MAXIMUM 1 STORY
PERVIOUS AREA		196,102 SF/26%
IMPERVIOUS AREA		399,024 SF/54%
TOTAL LOT COVERAGE		547,510 SF
LOT COVERAGE (NET)	60% (C2)	73.60%
SETBACKS		
FRONT (N, S, and W)	50'	35'
REAR (EAST)	20'	109'
PARKING		
10' WIDE SPACES		712
BARRIER FREE SPACES		16
TOTAL PARKING		728 SPACES/ 4,971,000 SF

COSTCO

JOB No. 10046	DATE: 8-19-10	1
REVISIONS:	SHEET 1 OF 20	
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	ENG: JAF	
	PM: DMB	
	TECH: [blank]	
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	TB#:	

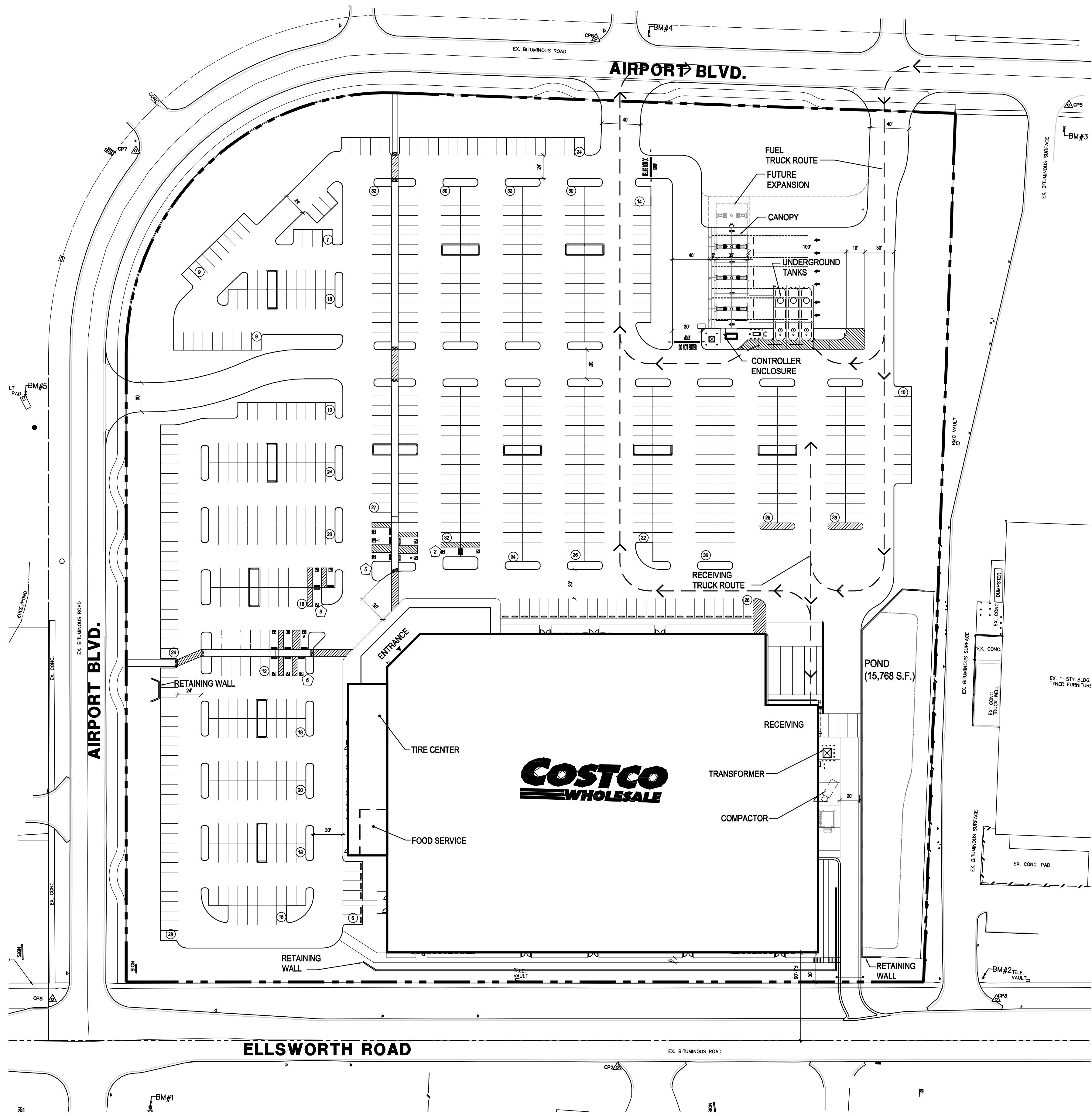
MIDWESTERN CONSULTING

Civil, Environmental and Transportation Engineers
Planners, Surveyors
Landscape Architects

3815 Plaza Drive
Ann Arbor, Michigan 48108
Phone: 734.995.0200
Fax 734.995.0599

RELEASED FOR:	DATE	

R:\10046\CADD\PRELIM\10046CV.dwg, 01, 8/17/2010 11:19:48 PM, WAJ, D:\Shaw-RFP.dwg



PROJECT DATA

CLIENT: COSTCO WHOLESALE
 999 LAKE DRIVE
 ISSAQUAH, WA 98027

PROJECT ADDRESS: AIRPORT BOULEVARD
 & ELLSWORTH ROAD

JURISDICTION: PITTSFIELD TOWNSHIP, MI

ZONING: TO BE DETERMINED

SETBACKS: FRONT: TBD
 SIDE: TBD
 REAR: TBD

BOUNDARIES INFORMATION: THIS PLAN HAS BEEN PREPARED BY
 MULVANNY G2 ARCHITECTURE USING
 INFORMATION PREPARED BY DESIGN
 STRATEGIES DATED.

SITE DATA:

TOTAL SITE AREA: 17.08 ACRES (743,915 S.F.)

BUILDING FOOTPRINT (WHSE & GAS): 148,489 S.F. (20%)

PERVIOUS AREA: 180,534 S.F. (24%)

IMPERVIOUS AREA: 414,892 S.F. (56%)

BUILDING DATA:

TOTAL BUILDING AREA: 148,489 S.F.

INCLUDES:

WAREHOUSE MAIN LEVEL	139,891 S.F.
ADDITIONAL SALES FLOOR (MULTI-LEVEL)	S.F.
TIRE CENTER	5,807 S.F.
OUTSIDE FOOD SERVICE	1,316 S.F.
MEZZANINE (OCCUPIED)	1,475 S.F.
ENCLOSED CANOPY	S.F.
LIQUOR SALES	S.F.
OUTSIDE FREEZER / COOLER	S.F.
OTHER	S.F.

PARKING DATA:

TOTAL PARKING: 728 STALLS

INCLUDES:

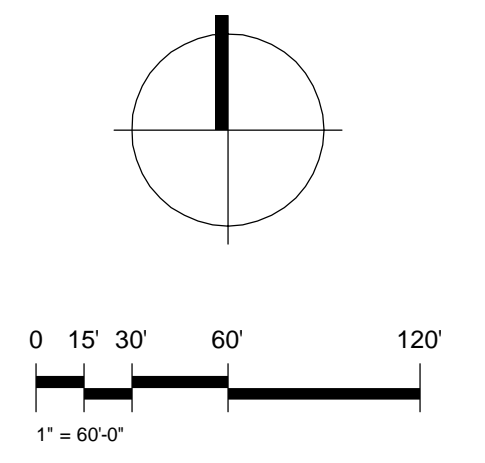
MAIN LEVEL PARKING PROVIDED:

10' WIDE STALLS	712 STALLS
9' WIDE STALLS	0 STALLS
ACCESSIBLE STALLS	16 STALLS

NO. OF STALLS PER 1000 SF OF BUILDING AREA: 4.90 STALLS

JURISDICTIONAL PARKING REQUIRED: STALLS

NOTES:
 EXISTING CONDITIONS TO BE FIELD VERIFIED.



PITTSFIELD TOWNSHIP, MI



1110 112TH AVE. NE | SUITE 500
 BELLEVUE, WA | 98004
 T 425.463.2000 | F 425.463.2002

MulvannyG2.com

09-0295-01
 AUGUST 19, 2010
 OVERALL
 SITE PLAN

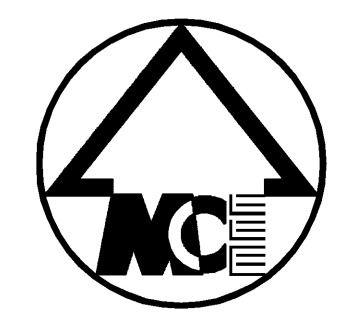
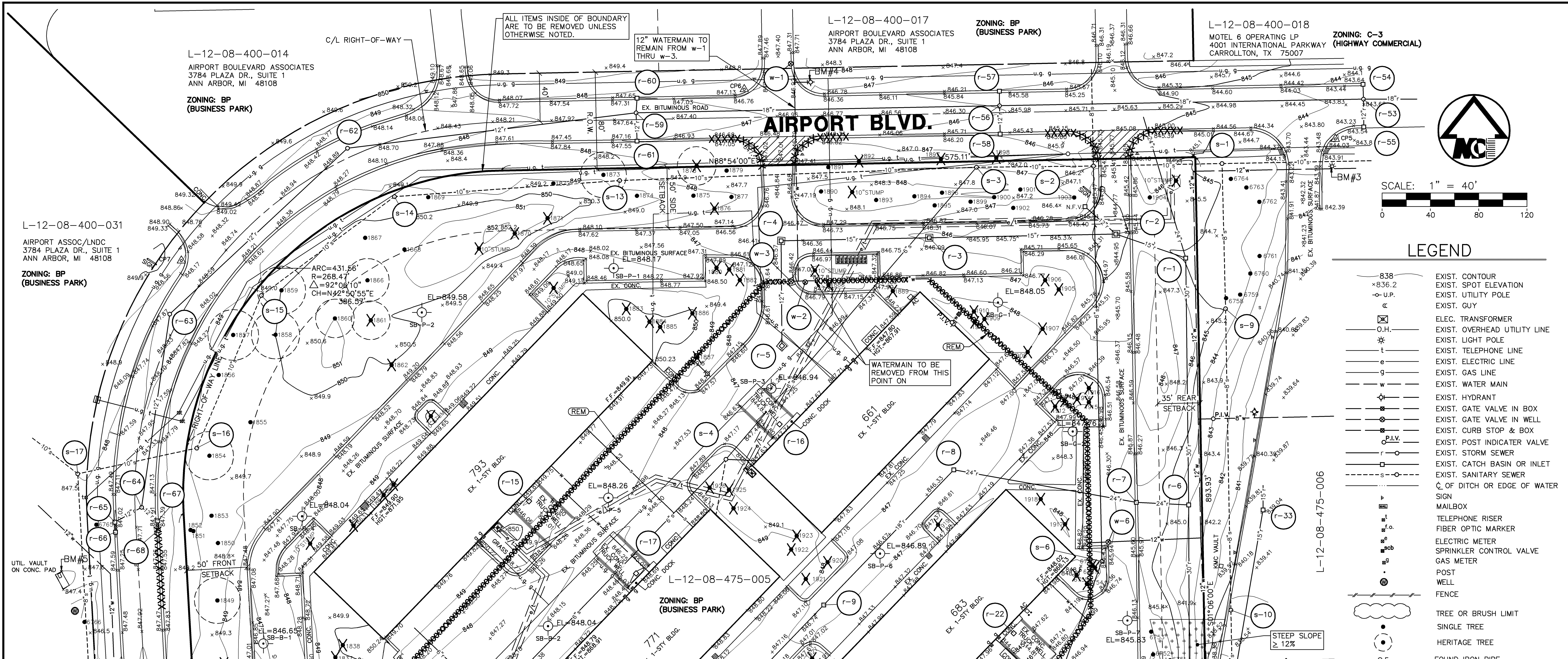
COSTCO WHOLESALE

PITTSFIELD TOWNSHIP, MICHIGAN

OVERALL SITE PLAN

AUGUST 19, 2010

P1.1-16



SCALE: 1" = 40'

0 40 80 120

LEGEND

- 838 - EXIST. CONTOUR
- x 836.2 - EXIST. SPOT ELEVATION
- o-u.p. - EXIST. UTILITY POLE
- ε - EXIST. GUY
- ⊠ - ELEC. TRANSFORMER
- o-h- - EXIST. OVERHEAD UTILITY LINE
- * - EXIST. LIGHT POLE
- t - EXIST. TELEPHONE LINE
- e - EXIST. ELECTRIC LINE
- g - EXIST. GAS LINE
- w - EXIST. WATER MAIN
- ⊕ - EXIST. HYDRANT
- ⊕ - EXIST. GATE VALVE IN BOX
- ⊕ - EXIST. GATE VALVE IN WELL
- ⊕ - EXIST. CURB STOP & BOX
- ⊕ - EXIST. POST INDICATOR VALVE
- ⊕ - EXIST. STORM SEWER
- ⊕ - EXIST. CATCH BASIN OR INLET
- ⊕ - EXIST. SANITARY SEWER
- ⊕ - EXIST. DITCH OR EDGE OF WATER
- ⊕ - SIGN
- ⊕ - MAILBOX
- ⊕ - TELEPHONE RISER
- ⊕ - FIBER OPTIC MARKER
- ⊕ - ELECTRIC METER
- ⊕ - SPRINKLER CONTROL VALVE
- ⊕ - GAS METER
- ⊕ - POST
- ⊕ - WELL
- ⊕ - FENCE
- ⊕ - TREE OR BRUSH LIMIT
- ⊕ - SINGLE TREE
- ⊕ - HERITAGE TREE
- ⊕ - FOUND IRON PIPE
- ⊕ - CONTROL PT.
- ⊕ - EXIST. FLAG POLE
- ⊕ - SECTION CORNER
- ⊕ - N.F.V.
- ⊕ - NOT FIELD VERIFIED
- ⊕ - TREE TO BE REMOVED
- ⊕ - BITUMINOUS REMOVAL
- ⊕ - STEEP SLOPE (≥ 12%)
- ⊕ - EXIST. CURB TO BE REMOVED
- ⊕ - SOILBORING

BENCH MARKS:

- BM#3 - TOP OF CONC. BASE TO LIGHT POLE @ SOUTH SIDE OF AIRPORT BLVD. & EAST SIDE OF WESTERLY ENTRANCE TO TYNERS. ELEVATION=845.94 NAVD 88.
- BM #4 - TOP OF MAIN STEAMER TO HYDRANT @ NORTH SIDE OF AIRPORT BLVD. & EAST SIDE OF 2ND ENTRANCE WEST OF EAST PROPERTY LINE. ELEVATION=848.89 NAVD 88.
- BM#5 - CHISELED "X" NORTH MOST CORNER, TOP OF CONC. LIFT STATION @ NE CORNER OF POND ON WEST SIDE OF AIRPORT BLVD. ELEVATION=848.20 NAVD 88.

NATURAL FEATURES NARRATIVE

WETLANDS AND WATERCOURSES: NONE

FLOODPLAINS: NONE

WOODLANDS AND HERITAGE TREES:
THERE ARE 14 HERITAGE TREES ON SITE, 4 OF WHICH TOTAL 66 CALIPER INCHES AND ARE TO BE REMOVED AND MITIGATED AT A ONE TO ONE RATIO. MITIGATION MAY INCLUDE ≥ 1/2" CALIPER SHADE TREES, AND/OR ≥ 6" TALL EVERGREEN TREES.
THERE IS 1 HERITAGE TREE IN THE AIRPORT BOULEVARD RIGHT-OF-WAY THAT IS TO REMAIN. PROPOSED PUBLIC SIDEWALK ALIGNMENT IS TO BE ADJUSTED TO AVOID IMPACTING EXISTING TREES IN THE RIGHT-OF-WAY.

STEEP SLOPES:
THERE IS A SMALL AREA OF ≥ 12% SLOPES AT THE SOUTHEAST CORNER OF THE SITE, ADJACENT TO THE TYNER FURNITURE SERVICE DRIVE.
THERE ARE ALSO ≥ 12% SLOPES AROUND THE DETENTION BASIN IN THE SOUTHEAST CORNER OF THE SITE.

ENDANGERED SPECIES HABITAT: NONE

GROUNDWATER RECHARGE:
THE ENTIRE SITE IS SHOWN TO BE WITHIN A GROUNDWATER RECHARGE AREA IN THE PITTSFIELD TOWNSHIP COMPREHENSIVE PLAN.
PER THE USDA SCS SOIL SURVEY OF WASHTENAW COUNTY, MICHIGAN, THE GENERAL SOILS ASSOCIATION IS THE BOYER SERIES. THESE SOILS ARE WELL DRAINED LOAMY AND SANDY DEPOSITS UNDERLAIN BY GRAVELLY COARSE SAND.
BOYER SOILS HAVE A LOW AVAILABLE WATER CAPACITY, AND MODERATELY RAPID PERMEABILITY.
THE SITE IS BNB-BOYER LOAMY SAND, WITH 0-6 PERCENT SLOPES.
RUNOFF IS SLOW. DEPTH TO SEASONAL HIGH WATER TABLE IS MORE THAN 5 FEET.
THE PROPOSED STORM WATER MANAGEMENT SYSTEM WILL BE DESIGNED TO ENCOURAGE INFILTRATION OF RUNOFF INTO THE SOIL.

LEGAL DESCRIPTION

The land referred to herein below is situated in the Township of Pittsfield, Washtenaw County, State of Michigan, and is described as follows:

Phase III: Commencing at the Southeast corner of Section 8, Town 3 South, Range 6 East, Pittsfield Township, Washtenaw County, Michigan; thence South 86 degrees 47 minutes 50 seconds West 75.05 feet along the South line of said Section and the centerline of Ellsworth Road; thence North 01 degrees 06 minutes 00 seconds West 60.04 feet; thence South 86 degrees 47 minutes 50 seconds West 813.12 feet along the Northerly right of way line of Ellsworth Road to the Point of Beginning; thence continuing South 86 degrees 47 minutes 50 seconds West 820.24 feet along said right of way line; thence North 03 degrees 12 minutes 10 seconds West 646.14 feet; thence 431.56 feet along the arc of a 268.47 radius circular curve to the right, through a central angle of 92 degrees 06 minutes 10 seconds a chord which bears North 42 degrees 50 minutes 55 seconds East 386.57 feet; thence North 88 degrees 54 minutes 00 seconds East 575.11 feet; thence South 01 degrees 06 minutes 00 seconds East 893.93 feet to the Point of Beginning, said parcel being a part of the Southeast 1/4 of Section 8, Township 3 South, Range 6 East, Pittsfield Township, Washtenaw County, Michigan.

- Exceptions:
- Agreement - Easement - Restrictions in favor of The Detroit Edison Company and Michigan Bell Telephone Company recorded in Liber 1651, page 115 and re-recorded in Liber 1667, page 952 and re-recorded in Liber 1740, page 780 and re-recorded in Liber 1753, page 460 and re-recorded in Liber 1785, page 561.
 - Release of Right of Way in favor of the Board of County Road Commissioners of the County of Washtenaw recorded in Liber 1582, page 417.
 - Release of Right of Way in favor of the Board of County Road Commissioners of the County of Washtenaw recorded in Liber 1582, page 418.
 - Rights of the public and of any governmental unit in any part of the land described above taken, used or deeded for street, road or highway purposes.

MIDWESTERN CONSULTING
Civil, Environmental and Transportation Engineers
Planners, Surveyors
Landscape Architects
3815 Plaza Drive
Ann Arbor, Michigan 48108
Phone: 734.995.0200
Fax: 734.995.0599

CLIENT
COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WA 98027

COSTCO
REZONING AND PRELIMINARY SITE PLAN
EXISTING CONDITIONS, NATURAL FEATURES
AND REMOVAL PLAN - NORTH

4

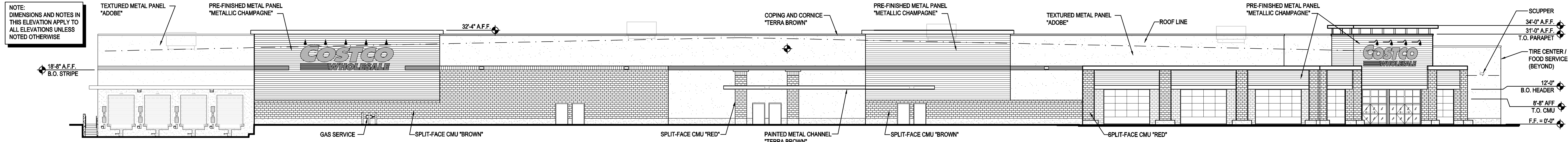
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SHEET: 4 OF 20
CADD: WAJ
ENG: JAF
CHK: DMB
TECH: JAF
PRELIM/DRAW/EXT: JAF/DF

REV. DATE

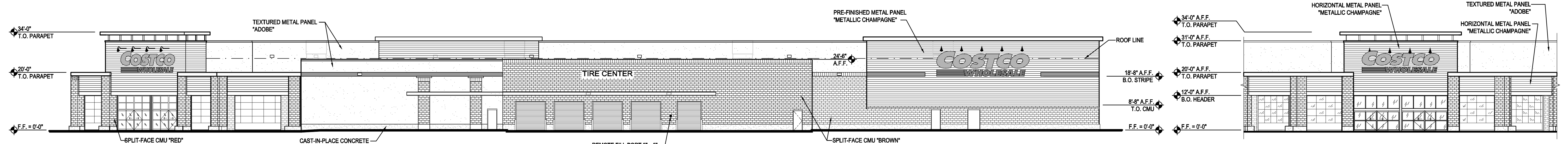
10046

JOB No. 10046
REVISIONS:



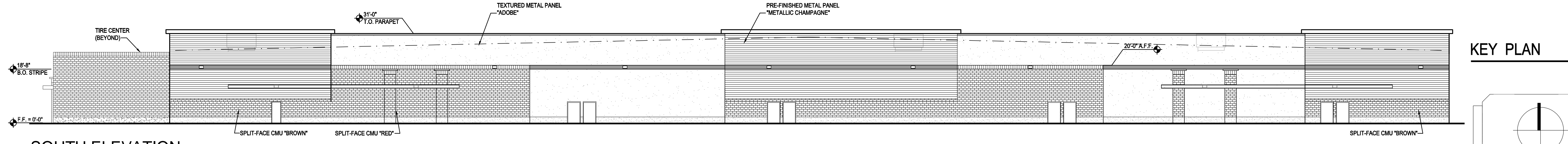


1 NORTH ELEVATION
SCALE: 1/16" = 1'-0"

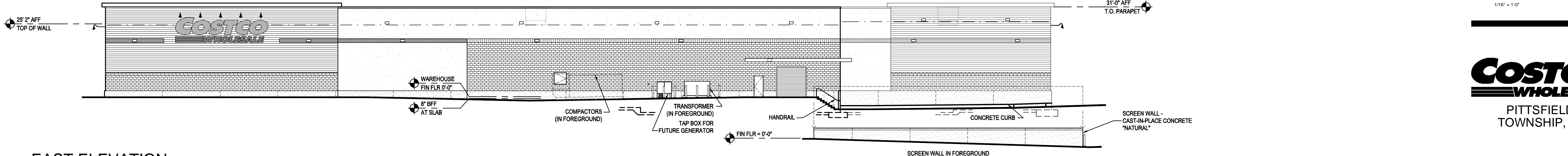


2 WEST ELEVATION
SCALE: 1/16" = 1'-0" (SEE ELEVATION 1 ABOVE FOR ADDITIONAL NOTES)

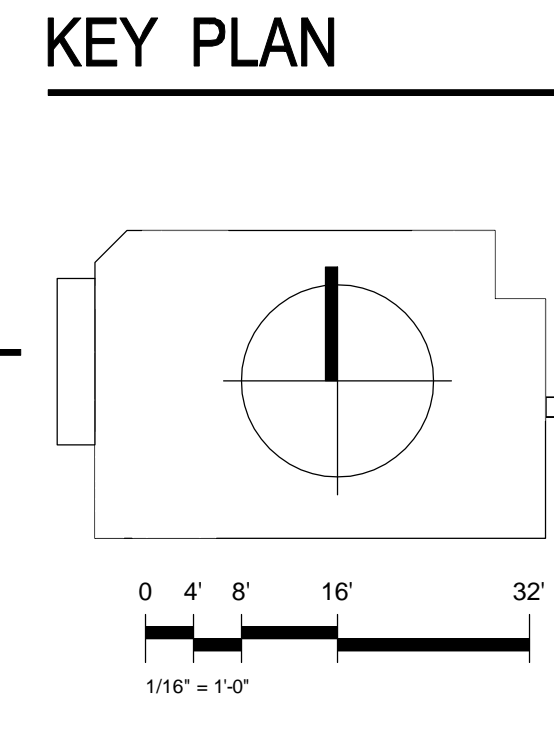
3 ELEVATION
SCALE: 1/16" = 1'-0" (SEE ELEVATION 1 ABOVE FOR ADDITIONAL NOTES)



4 SOUTH ELEVATION
SCALE: 1/16" = 1'-0" (SEE ELEVATION 1 ABOVE FOR ADDITIONAL NOTES)



5 EAST ELEVATION
SCALE: 1/16" = 1'-0" (SEE ELEVATIONS 1 AND 2 ABOVE FOR ADDITIONAL NOTES)



COSTCO WHOLESALE
PITTSFIELD TOWNSHIP, MI

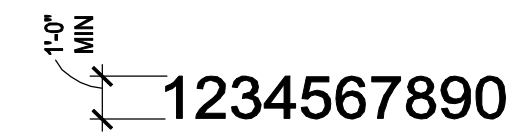
MULVANNY G2

1110 112TH AVE. NE | SUITE 500
BELLEVUE, WA | 98004
1.425.463.2000 | 1.425.463.2002

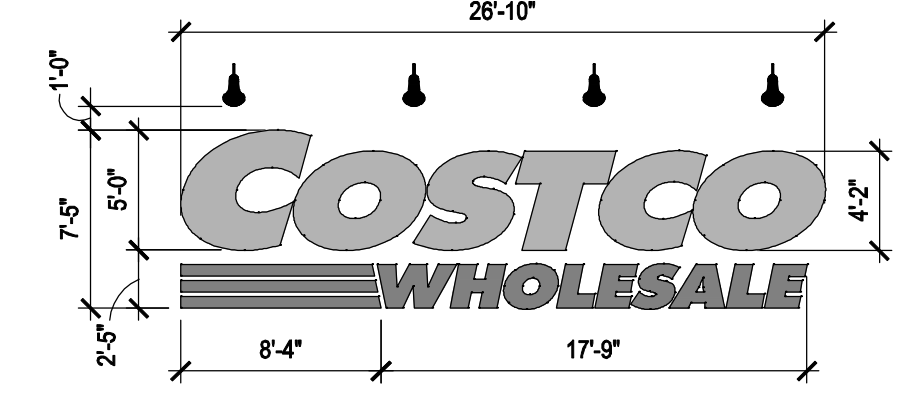
MulvannyG2.com

AUGUST 19, 2010
PRELIMINARY ELEVATIONS

P3.1-01



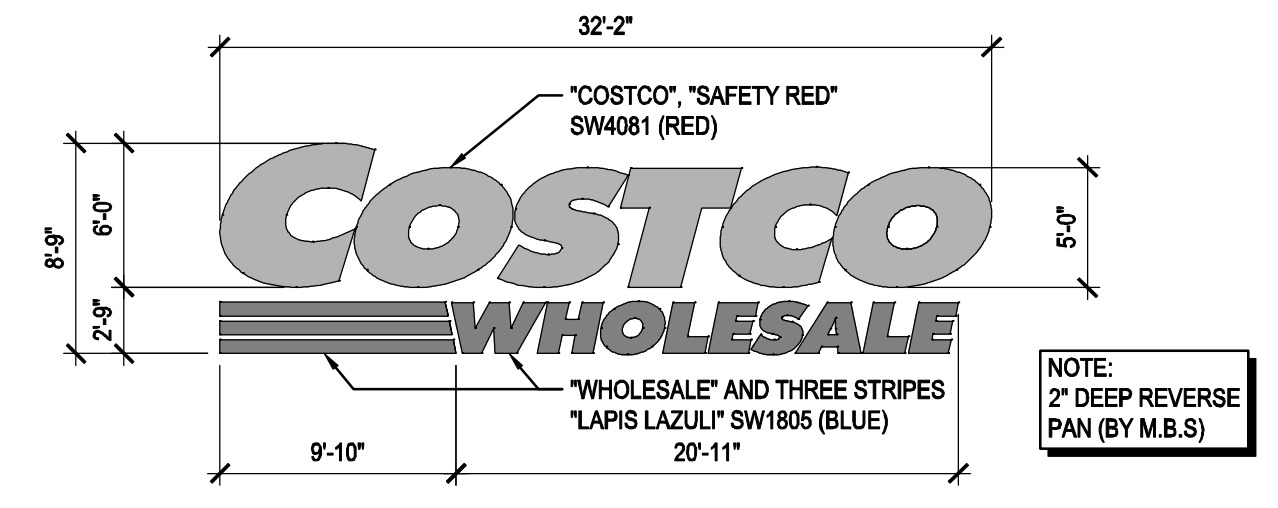
7 ADDRESS
SCALE: NOT TO SCALE (SUPPLIED AND INSTALLED BY MBS) 0809



8 CANOPY SIGNAGE
SCALE: 1/8" = 1'-0" (SUPPLIED AND INSTALLED BY MBS) 0809



9 LOCATION SIGNAGE
SCALE: 1/8" = 1'-0" (SUPPLIED AND INSTALLED BY MBS) 0407



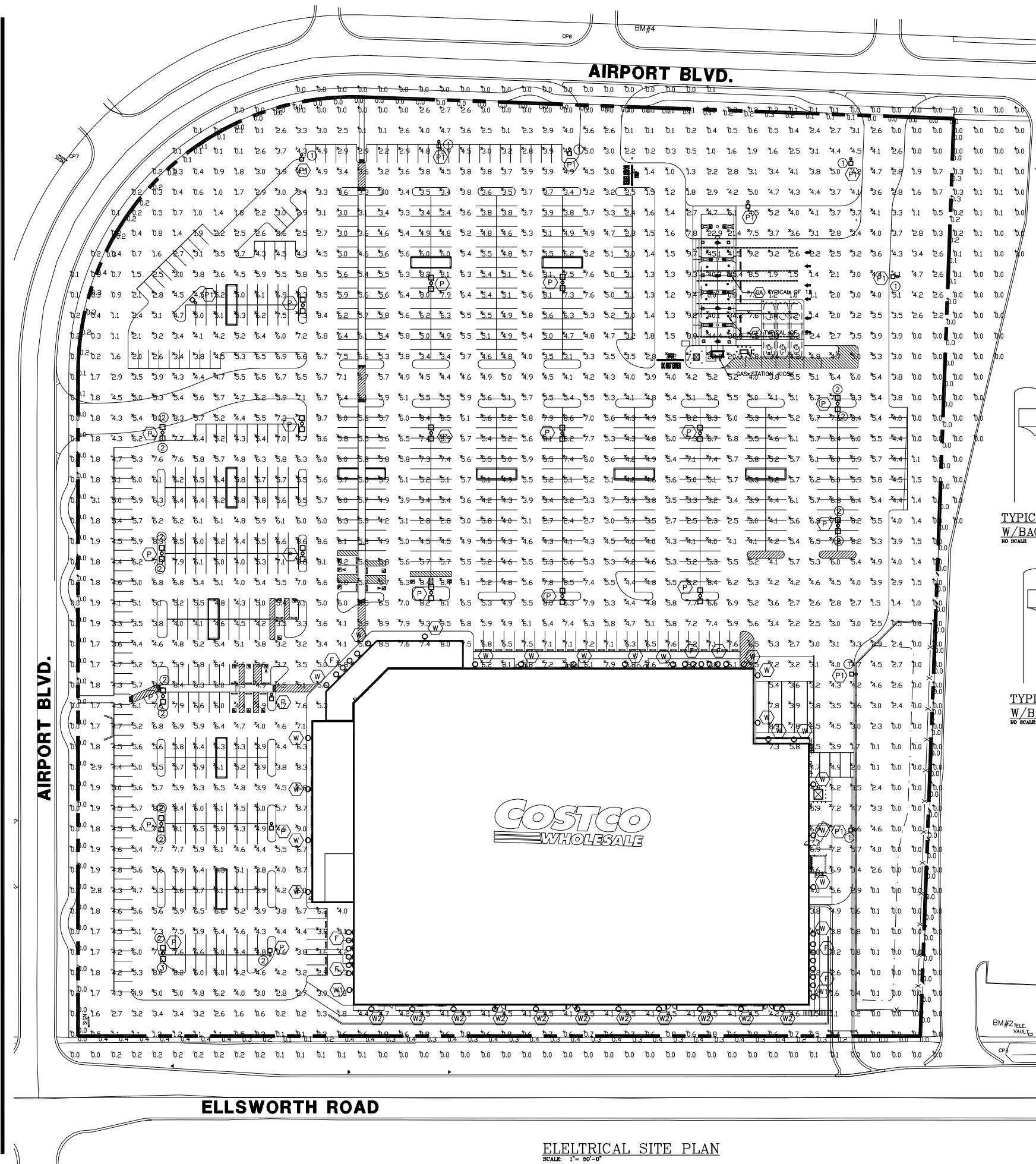
10 BUILDING SIGNAGE
SCALE: 1/8" = 1'-0"

COSTCO WHOLESALE

PRELIMINARY ELEVATIONS

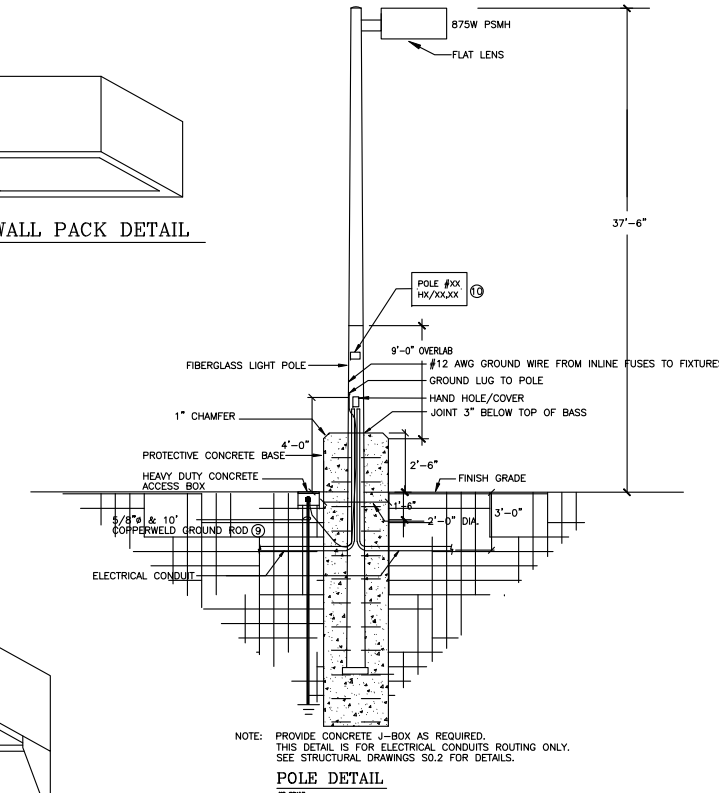
PITTSFIELD TOWNSHIP, MICHIGAN

AUGUST 19, 2010

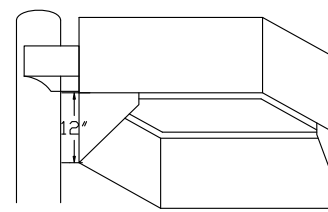


ELECTRICAL SITE PLAN
SCALE: 1" = 50'-0"

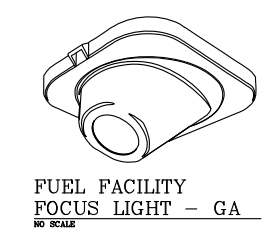
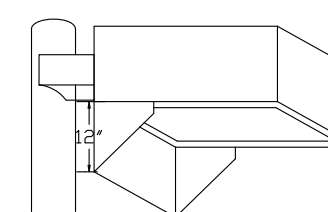
TYPICAL WALL PACK DETAIL
SCALE: NTS



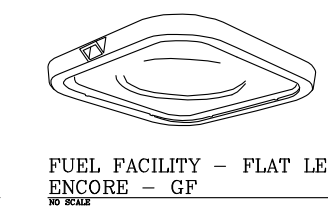
TYPICAL POLE MOUNT FIXTURE
W/BACK SHIELD ATTACHMENT
NO SCALE



TYPICAL POLE MOUNT FIXTURE
W/BACK SHIELD ATTACHMENT
NO SCALE



FUEL FACILITY
FOCUS LIGHT - GA
NO SCALE



FUEL FACILITY - FLAT LENS
ENCORE - GF
NO SCALE

FIXTURE DESCRIPTION	QUANTITY	LUMENS	IES FILE
(P) COOPER GALLERIA GSM-875W-PSMH-AS-FLAT LENS, TYPE 5 DISTRIBUTION, 35' POLE, WITH 2-1/2' BASE.	39	100,000	GSM1KMA5F
(P1) COOPER GALLERIA GSM-875W-PSMH-3V-FLAT LENS, 35' POLE, WITH 2-1/2' BASE.	9	100,000	GSM1KM3VF
(W) EMCO ECW-200W-PSMH SHOEBOX-TYPE, 20' MOUNTING HEIGHT	22	21,000	GL-6333-EMCO
(W1) EMCO ECW-100W-PSMH SHOEBOX-TYPE, 20' MOUNTING HEIGHT	2	9,000	GL-6333-EMCO
(W2) EMCO ECW-100W-PSMH SHOEBOX-TYPE, 12' MOUNTING HEIGHT	11	9,000	GL-6333-EMCO
(GF) (1) 250W SMH, RECESSED FLAT LENS DOWN LIGHT, 18' MOUNTING HEIGHT	12	2,500 *	ECA-S32-PSMW-F
(GA) (1) 100W SMH, RECESSED FOCUS / SPOT LIGHT, 18' MOUNTING HEIGHT	12	9,000 *	EC-SP100P-38-F0
(F) 150W PSMH SIGN LIGHT	22	14,000	AD200-150-MH-WHT-PG3

* NOT INCLUDED IN LUMEN CALCULATION

PHOTOMETRY STATISTICS (NOT INCLUDING LIGHT LEVEL UNDER GAS STATION CANOPY)	
PARKING LOT & ROADWAYS	PROPERTY LINES
MINIMUM F.C. = 1.0	MINIMUM F.C. = 0.0
AVERAGE F.C. = 5.2	AVERAGE F.C. = 0.1
MAXIMUM F.C. = 9.7	MAXIMUM F.C. = 0.4
MAX/MIN F.C. = 9.7:1	MAX/MIN F.C. = N/A
AVE/MIN F.C. = 5.2	AVE/MIN F.C. = N/A

PLAN NOTES

- PROVIDE 12" EXTERNAL HOUSE SIDE SHIELD.
- PROVIDE 9" EXTERNAL HOUSE SIDE SHIELD THIS HEAD.
- PROVIDE 9" EXTERNAL HOUSE SIDE SHIELD, 2 SIDES, SEE DETAIL THIS SHEET.

LUMENS (EXCLUDING GAS) = 5,607,000
NETACRE = 17.08
LUMENS/ACRE = 319,494
ALLOWED LUMENS/ACRE = 80,000

ELECTRICAL SITE PLAN

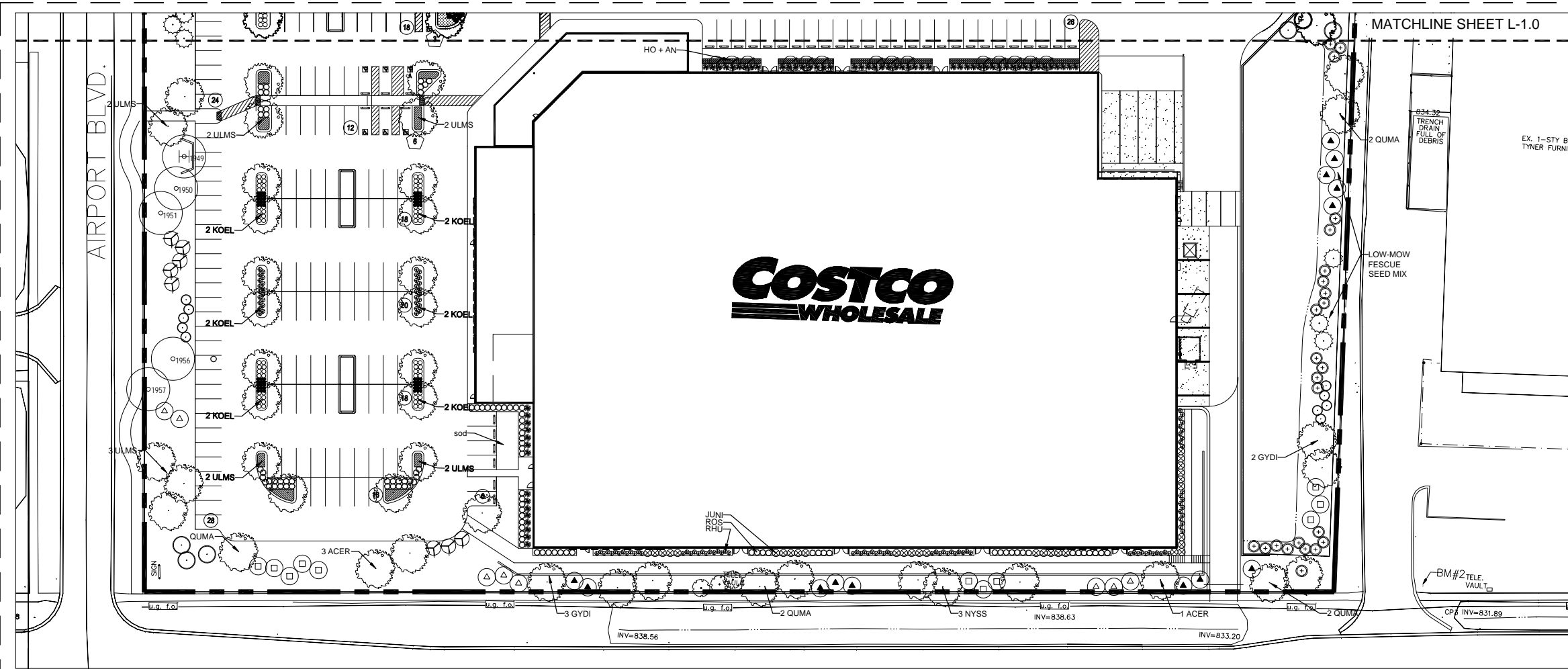
PROJECT NO: 10-219
ARCHITECT REFERENCE NO: 09-0295-01
ISSUE DATE: AUGUST 19, 2010
REVISION DATE:
DRAWN: HM
CHECKED: JGM/ANT

DD PACKAGE

T.F., Inc.
830 N. RIVERSIDE DRIVE
SUITE #200
RENTON, WA 98057
PHONE: 425-970-3753
FAX: 425-970-3756

Costco Wholesale
AIRPORT BOULEVARD
& ELLSWORTH ROAD
PITTSFIELD TOWNSHIP, MI

SE-1

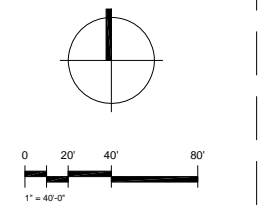


SYMBOL	BOTANICAL/COMMON NAMES	ACRONYM	INSTALLED SIZE	CONDITION	SPACING	QUANTITY	SPREAD AT 30 YEARS
CANOPY TREES (TOTAL 114 TREES):							
○	ACER X FREEMANI 'AUTUMN BLAZE/AUTUMN BLAZE MAPLE	ACER	3" CAL	B&B	AS SHOWN	8	50' x 30'
○	GLEDTISIA TRICANTHOS VAR. INERMIS 'SHADEMASTER/SHADEMASTER HONEYLOCUST	GLTR				20	45' x 35'
○	GYMNOCLODUS DIOICUS/KENTUCKY COFFEETREE	GYDI				5	50' x 40'
○	KOELHUTERIA PANICULATA/GOLDENRAIN TREE	KOEL				12	40' x 30'
○	NYSSA SYLVATICA/BLACK TUPELO	NYSS				8	40' x 25'
○	PLATANUS X ACERIFOLIA 'COLUMBIAN/COLUMBIA LONDONPLANE	PLAC				5	50' x 40'
○	QUERCUS MACROCARPA/RUR OAK	QUMA				8	50' x 50'
○	ULMUS PARVIFOLIA 'DYNASTY/DYNASTY ELM	ULMS				26	40' x 35'
○	ZELKOVA SERRATA 'GREEN VASE/GREEN VASE ZELKOVA	ZELK				13	60' x 40'
ORNAMENTAL TREES (TOTAL 99 TREES):							
○	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE/AUTUMN BRILLIANCE SERVICEBERRY	AMEL	8" HT.	B&B	AS SHOWN	36	20' x 15'
○	ACER GRINNALI/MAR MAPLE	AGIN	8" HT.			30	15' x 15'
○	CERCIS CANADENSIS/REDBUD	CERC	2" CAL			17	20' x 25'
○	MALUS CV. CRABAPPLE CULTIVARS	MALS	2" CAL			14	10-20' x 12-20'
EVERGREEN TREES (TOTAL 124 TREES):							
○	PICEA ABIES/NORWAY SPRUCE	PICN	8" HT.	B&B	AS SHOWN	14	50' x 20'
○	PICEA OMORIKI/BLACK HILLS SPRUCE	PICB	8" HT.	B&B	AS SHOWN	26	45' x 20'
○	PIRUS NIGRA/AUSTRALIAN PINE	PIRU	8" HT.	B&B	AS SHOWN	27	45' x 25'
○	JUNIPERUS SCOPIULORUM 'WICHITA BLUE/WICHITA BLUE JUNIPER	JUNI	8" HT.	B&B	AS SHOWN	57	15' x 8'

- NOTES:**
- ALL AREAS NOT SHOWING LANDSCAPE BEDS SHALL RECEIVE SOD.
 - ALL SHRUB BEDS/GROUPINGS AND TREE SAUCERS SHALL RECEIVE 2" COMPOSTED SHREDDED HARDWOOD BARK MULCH.
 - ALL PARKING LOT ISLANDS SHALL HAVE AN 18" UNPLANTED MULCH BAND BACK OF CURB. ALL PLANTING AREAS ADJACENT TO DRIVES SHALL HAVE A 2" UNPLANTED MULCH BAND BACK OF CURB.

SYMBOL	BOTANICAL/COMMON NAMES	ACRONYM	INSTALLED SIZE	CONDITION	SPACING	QUANTITY
SHRUBS (TOTAL 1,068 SHRUBS):						
○	ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA/BRILLIANT RED CHOKEBERRY	ARO	30" HT.	B&B	4' O.C.	85
○	HYDRANGEA PANICULATA 'PINK DIAMOND/PINK DIAMONDS HYDRANGEA	HYD	30" HT.	B&B	5' O.C.	144
○	JUNIPERUS CHINENSIS 'WICKS COMPACT/WICKS COMPACT JUNIPER	JCH	24" SPD.	CONT.	5' O.C.	34
○	POTENTILLA FRUTICOSA 'GOLD DROP/GOLD DROP POTENTILLA	POT	18" HT.	CONT.	3' O.C.	224
○	RHUS AROMATICA 'GRO-LOW/GRO-LOW FRAGRANT SUMAC	RHU	18" SPD.	CONT.	3' O.C.	255
○	RHUS TYPHINA 'LACINATA/CUT-LEAF STAGHORN SUMAC	RHT	5" HT.	B&B	5' O.C.	24
○	ROSA 'SCARLET PAVEMENT/SCARLET PAVEMENT SHRUB ROSE	ROS	18" SPD.	CONT.	3' O.C.	110
○	SPIRAEA JAPONICA 'MAGIC CARPET/MAGIC CARPET SPIREA	SPI	18" HT.	CONT.	3' O.C.	78
○	TAXUS X MEDIA 'EVERLOW/EVERLOW YEW	TAX	24" SPD.	B&B	4' O.C.	64
○	VERBURNUM FLUCATUM 'TOMETOSUM 'MARIES/MARIES DOUBLEFILE VIBURNUM	VIB	4" HT.	B&B	7' O.C.	50
PERENNIALS (TOTAL 3,029 PLANTS):						
○	ATHYRIUM NIPONICUM VAR. PICTUM/JAPANESE PAINTED FERN	AN	1 GAL.	CONT.	18" O.C.	182
○	CALAMAGROSTIS X A. KARL FOENSTER/KARL FOENSTER FEATHER REED GRASS	CA			24" O.C.	384
○	ECHINACEA PURPUREA 'RUBY STAR/RUBY STAR PURPLE CONEFLOWER	EP			18" O.C.	158
○	HEMEROCALLIS 'RUBY STELLA/RUBY STELLA DAYLILY	HR			18" O.C.	488
○	HEMEROCALLIS 'STELLA D'ORO/STELLA D'ORO DAYLILY	HS			18" O.C.	352
○	HOSTA 'HALCYON/HALCYON HOSTA	HO			24" O.C.	102
○	MISCANTHUS 'MORNING LIGHT/MORNING LIGHT MAIDEN GRASS	ML			36" O.C.	184
○	NEPETA X FAASSEMI 'WALKERS LOW/WALKERS LOW CATMINT	NE			24" O.C.	800
○	PEROVSKIA ATRIPLICIFOLIA 'LITTLE SPIRE/LITTLE SPIRE RUSSIAN SAGE	PA			24" O.C.	93
○	PANICUM VIRGATUM 'SHENANDOAH/SHENANDOAH SWITCHGRASS	PV			30" O.C.	117
○	SEDUM SPECTABILE 'BRILLIANT/BRILLIANT SEDUM	SE			18" O.C.	161

- LANDSCAPE REQUIREMENTS:**
- ALL DECIDUOUS CANOPY TREE SPECIES HAVE MATURE CROWN SPREAD GREATER THAN 15 FEET AND MATURE HEIGHT OF 40 FEET OR MORE.
 - SPECIES DIVERSITY: REQUIRED: ONE SPECIES DOES NOT EXCEED 20% OF THE TOTAL CANOPY TREES, ORNAMENTAL TREES, CONIFEROUS TREES OR SHRUBS. TOTAL TREES (CANOPY, ORNAMENTAL, CONIFEROUS) AND SHRUBS = 1,406. 20% OF TOTAL = 281. PROVIDED: MAXIMUM NUMBER OF ONE SPECIES = 285 (RHUS AROMATICA 'GRO-LOW).
 - PARKING LOT TREES: REQUIRED: AT LEAST ONE CANOPY TREE FOR EVERY 8 PARKING SPACES. TOTAL PARKING SPACES = 782 SPACES. REQUIRED NUMBER OF CANOPY TREES = 782 SPACES / 8 = 94 TREES. PROVIDED: 114 CANOPY TREES. 8 ACER, 26 GLTR, 5 GYDI, 12 KOEL, 8 NYSS, 5 PLAC, 8 QUMA, 26 ULMS, 13 ZELK.



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PITTSFIELD TWP, MI

JJR landscape architecture
urban design
civil engineering
environmental science
JJR, LLC
110 MILLER AVENUE,
ANN ARBOR, MICHIGAN 48104
734.662.4457 T
734.662.0779 F
www.jjr-us.com

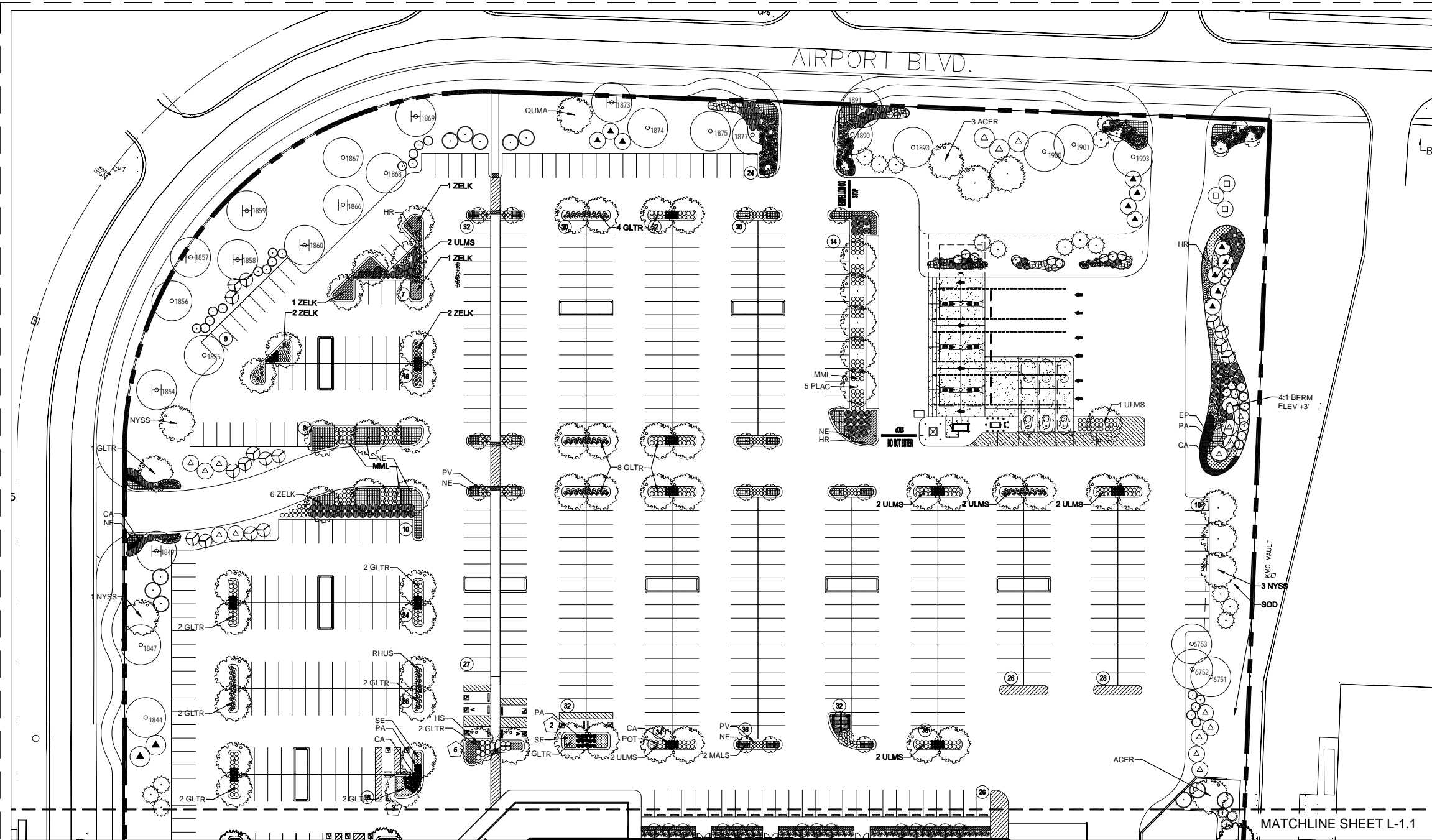
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LANDSCAPE PLAN

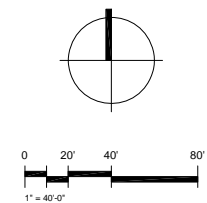
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L-1.1



PLANT NOTES AND LIST - SEE SHEE L-1.1



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 734.662.4457 T
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AUGUST 19, 2010

EXISTING TREE LIST

TAG#	DIA	STEMS	COMMON NAME	GENUS/SPECIES	HEALTH
1835	R 13"		Honey Locust	Gleditsia triacanthos	
1836	R 8"		Red Pine	Pinus resinosa	
1837	R 6"		Red Pine	Pinus resinosa	
1838	R 6"		Red Pine	Pinus resinosa	
1839	R 12"		Honey Locust	Gleditsia triacanthos	
1840	R 10"		Red Pine	Pinus resinosa	
1841	R 12"		White Pine	Pinus strobus	
1842	R 12"		Red Pine	Pinus resinosa	
1843	R 9"		Honey Locust	Gleditsia triacanthos	40% alive
1844	R 10"		Red Pine	Pinus resinosa	
1845	R 9"		Red Pine	Pinus resinosa	60% alive
1846	R 13"		Black Walnut	Juglans nigra	60% alive
1847	R 16"		Black Walnut	Juglans nigra	
1848	R 13"		Honey Locust	Gleditsia triacanthos	
1849	H 19"		Honey Locust	Gleditsia triacanthos	
1850	R 11"		Pear	Pyrus	
1851	R 15"		Black Walnut	Juglans nigra	
1852	R 11"		Black Walnut	Juglans nigra	
1853	R 7"	twin	Pear	Pyrus	
1854	H 20"		Black Walnut	Juglans nigra	
1855	R 17"		Sycamore	Platanus occidentalis	
1856	R 12"		Sycamore	Platanus occidentalis	
1857	H 21"		Norway Maple	Acer platanoides	
1858	H 20"		Sycamore	Platanus occidentalis	
1859	H 20"		Sycamore	Platanus occidentalis	
1860	H 16"		Norway Maple	Acer platanoides	
1861	R 16"		Norway Maple	Acer platanoides	
1862	R 14"		Honey Locust	Gleditsia triacanthos	
1863	R 6"	twin	Hawthorn	Crataegus	
1864	R 6"	twin	Hawthorn	Crataegus	
1865	R 6"	twin	Hawthorn	Crataegus	
1866	H 18"		Sycamore	Platanus occidentalis	
1867	R 17"		Sycamore	Platanus occidentalis	
1868	R 17"		Sycamore	Platanus occidentalis	
1869	H 19"		Sycamore	Platanus occidentalis	
1870	R 8"		Black Pine	Pinus nigra	60% alive
1871	R 11"		Sugar Maple	Acer saccharum	
1872	R 9"		Sugar Maple	Acer saccharum	60% alive
1873	H 19"		Sycamore	Platanus occidentalis	
1874	R 17"		Sycamore	Platanus occidentalis	
1875	R 14"		Sycamore	Platanus occidentalis	
1876	R 14"		Pinus nigra	Pinus nigra	
1877	R 16"		Red Pine	Pinus resinosa	
1878	H 16"		Norway Maple	Acer platanoides	
1879	R 14"		Norway Maple	Acer platanoides	
1880	R 8"		White Pine	Pinus strobus	40% alive
1881	R 9"		White Pine	Pinus strobus	40% alive
1882	R 9"		White Pine	Pinus strobus	
1883	R 15"		Honey Locust	Gleditsia triacanthos	
1884	R 6"		Red Pine	Pinus resinosa	
1885	R 6"		Red Pine	Pinus resinosa	
1886	R 14"		Honey Locust	Gleditsia triacanthos	
1887	R 11"		Honey Locust	Gleditsia triacanthos	
1888	R 10"		Honey Locust	Gleditsia triacanthos	
1889	R 13"		Honey Locust	Gleditsia triacanthos	
1890	R 16"		Sycamore	Platanus occidentalis	
1891	R 9"		Sugar Maple	Acer saccharum	
1892	R 11"		Sugar Maple	Acer saccharum	
1893	R 13"		Norway Maple	Acer platanoides	
1894	R 16"		Black Pine	Pinus nigra	dead
1895	R 11"		Black Pine	Pinus nigra	
1896	R 12"		Black Pine	Pinus nigra	60% alive
1897	R 17"		Sycamore	Platanus occidentalis	
1898	R 17"		Sycamore	Platanus occidentalis	
1899	R 11"		Sycamore	Platanus occidentalis	
1900	R 15"		Black Pine	Pinus nigra	
1901	R 13"		Black Pine	Pinus nigra	
1902	R 14"		Norway Maple	Acer platanoides	
1903	R 11"		Red Pine	Pinus resinosa	
1904	R 9"		Norway Maple	Acer platanoides	
1905	R 11"		Red Pine	Pinus resinosa	
1906	R 10"		Red Pine	Pinus resinosa	
1907	R 13"		Honey Locust	Gleditsia triacanthos	
1908	R 15"		Honey Locust	Gleditsia triacanthos	
1909	R 8"		Red Pine	Pinus resinosa	
1910	R 8"		Red Pine	Pinus resinosa	
1911	R 8"		Red Pine	Pinus resinosa	
1912	R 14"		Black Pine	Pinus nigra	
1913	R 12"		Black Pine	Pinus nigra	
1914	R 12"		Black Pine	Pinus nigra	
1915	R 8"		Black Pine	Pinus nigra	dead
1916	R 10"		Black Pine	Pinus nigra	dead
1917	R 9"		Norway Maple	Acer platanoides	
1918	R 11"		Norway Maple	Acer platanoides	
1919	R 8"		Linden	Tilia americana	
1920	R 9"		White Pine	Pinus strobus	dead
1921	R 10"		White Pine	Pinus strobus	
1922	R 6"		White Pine	Pinus strobus	
1923	R 14"		Honey Locust	Gleditsia triacanthos	
1924	R 12"		Honey Locust	Gleditsia triacanthos	
1925	R 7"		Red Pine	Pinus resinosa	
1926	R 8"		Red Pine	Pinus resinosa	
1927	R 6"		Red Maple	Acer rubrum	
1928	R 12"		Norway Maple	Acer platanoides	
1929	R 15"		Sycamore	Platanus occidentalis	
1930	R 12"		Norway Maple	Acer platanoides	
1931	R 14"		Black Pine	Pinus nigra	
1932	R 12"		Black Pine	Pinus nigra	
1933	R 10"		White Pine	Pinus strobus	40% alive
1934	R 8"		White Pine	Pinus strobus	40% alive
1935	R 16"		Honey Locust	Gleditsia triacanthos	
1936	R 16"		Honey Locust	Gleditsia triacanthos	
1937	R 7"		Norway Maple	Acer platanoides	
1938	R 11"		Honey Locust	Gleditsia triacanthos	
1939	R 12"		Honey Locust	Gleditsia triacanthos	
1940	R 14"		Black Pine	Pinus nigra	dead

TAG#	DIA	STEMS	COMMON NAME	GENUS/SPECIES	HEALTH
1941	R 15"		Black Pine	Pinus nigra	dead
1942	R 12"		Honey Locust	Gleditsia triacanthos	
1943	R 8"		Red Pine	Pinus resinosa	
1944	R 11"		Red Pine	Pinus resinosa	
1945	R 10"		White Pine	Pinus strobus	
1946	R 13"		White Pine	Pinus strobus	
1947	R 9"		White Pine	Pinus strobus	
1948	R 10"		White Pine	Pinus strobus	
1949	H 16"		Honey Locust	Gleditsia triacanthos	
1950	R 13"		Black Walnut	Juglans nigra	
1951	R 14"		Black Walnut	Juglans nigra	
1952	R 15"		Honey Locust	Gleditsia triacanthos	
1953	R 8"		White Pine	Pinus strobus	
1954	R 13"		White Pine	Pinus strobus	
1955	R 14"		White Pine	Pinus strobus	
1956	R 13"		Black Walnut	Juglans nigra	
1957	R 16"		Black Pine	Pinus nigra	
1958	R 4"	multiple	Crab Apple	Malus coronaria	
1959	R 15"		Blue Spruce	Picea pungens	
1960	R 16"		Blue Spruce	Picea pungens	
1961	R 11"		Norway Maple	Acer platanoides	
1962	R 14"		Norway Maple	Acer platanoides	
1963	R 12"		Norway Maple	Acer platanoides	
1964	R 16"		Sycamore	Platanus occidentalis	
1965	R 13"		Norway Maple	Acer platanoides	
1966	R 10"		Red Maple	Acer rubrum	
1967	R 13"		Norway Maple	Acer platanoides	
1968	R 13"		Norway Maple	Acer platanoides	
1969	R 15"		Black Pine	Pinus nigra	
1970	R 18"		Black Pine	Pinus nigra	
1971	R 14"		Black Pine	Pinus nigra	
1972	R 15"		Black Pine	Pinus nigra	
1973	R 16"		Black Pine	Pinus nigra	
1974	R 14"		Norway Maple	Acer platanoides	
1975	R 13"		Norway Maple	Acer platanoides	
1976	R 7"		Red Maple	Acer rubrum	40% alive
1977	R 11"		Sugar Maple	Acer nigra	
1978	R 6"	twin	Black Pine	Pinus nigra	
1979	R 14"		Black Pine	Pinus nigra	
1980	R 8"		Black Pine	Pinus nigra	
1981	R 10"		Douglas-fir	Pseudotsuga menziesii	
1982	R 8"		Blue Spruce	Picea pungens	
1983	R 12"		Blue Spruce	Picea pungens	
1984	R 15"		Blue Spruce	Picea pungens	
1985	R 11"		Blue Spruce	Picea pungens	
1986	R 14"		Blue Spruce	Picea pungens	
1987	R 11"		Blue Spruce	Picea pungens	
1988	R 9"		Blue Spruce	Picea pungens	
1989	R 9"		Blue Spruce	Picea pungens	
1990	R 7"		Blue Spruce	Picea pungens	
1991	R 7"		Linden	Tilia americana	
1992	R 9"		Linden	Tilia americana	
1993	R 11"		Norway Maple	Acer platanoides	
1994	R 11"		Sycamore	Platanus occidentalis	
1995	R 12"		Norway Maple	Acer platanoides	
1996	R 11"		Norway Maple	Acer platanoides	
1997	R 12"		Black Pine	Pinus nigra	
1998	R 15"		Black Pine	Pinus nigra	
1999	R 14"		Honey Locust	Gleditsia triacanthos	
2000	R 14"		Honey Locust	Gleditsia triacanthos	
6734	R 8"		Honey Locust	Gleditsia triacanthos	
6735	R 4"	quad	Honey Locust	Gleditsia triacanthos	
6736	R 6"	twin	Blue Spruce	Picea pungens	
6737	R 10"		Black Pine	Pinus nigra	
6738	R 11"		Blue Spruce	Picea pungens	
6739	R 11"		Blue Spruce	Picea pungens	
6740	R 10"		Norway Maple	Acer platanoides	
6741	R 10"		Linden	Tilia americana	
6742	R 8"		Linden	Tilia americana	
6743	R 10"		Blue Spruce	Picea pungens	
6744	R 6"		Norway Maple	Acer platanoides	
6745	R 9"		Norway Maple	Acer platanoides	
6746	R 10"		Norway Maple	Acer platanoides	
6747	R 11"		White Pine	Pinus strobus	
6748	R 16"		Black Pine	Pinus nigra	
6749	R 13"	twin	Black Pine	Pinus nigra	
6750	R 14"		Black Pine	Pinus nigra	
6751	R 16"		Black Pine	Pinus nigra	
6752	R 13"		Black Pine	Pinus nigra	
6753	R 9"		Black Pine	Pinus nigra	
6754	R 10"	twin	Black Pine	Pinus nigra	
6755	R 16"		Black Pine	Pinus nigra	
6756	R 16"		Black Pine	Pinus nigra	
6757	R 13"		Black Pine	Pinus nigra	
6758	R 9"		Black Pine	Pinus nigra	
6759	R 14"		Honey Locust	Gleditsia triacanthos	
6760	R 10"		Black Pine	Pinus nigra	
6761	R 7"		Black Pine	Pinus nigra	
6762	R 11"		Honey Locust	Gleditsia triacanthos	
6763	R 11"		Black Pine	Pinus nigra	
6764	R 10"		Black Pine	Pinus nigra	
6765	R 11"		Honey Locust	Gleditsia triacanthos	
6766	R 10"		Black Walnut	Juglans nigra	
6767	R 13"		Black Walnut	Juglans nigra	
6768	R 15"		Black Walnut	Juglans nigra	40% alive
6769	R 10"		Black Walnut	Juglans nigra	
6770	R 17"		Black Walnut	Juglans nigra	
6771	R 13"		Black Walnut	Juglans nigra	
6772	R 12"		Black Cherry	Prunus serotina	60% alive

H = HERITAGE TREE
R = REMOVE
MITIGATION NOTES:
4 HERITAGE TREES ARE TO BE REMOVED.
3 @ 16" AND 1 @ 18" = 66 CAL. INCHES REMOVED
MITIGATION REQUIRED = 66 CAL. INCHES

EXISTING STORM STRUCTURE SCHEDULE

STRUCTURE #	TYPE	RIM	INV.	INV.	INV.	INV.	NOTES
r-1	CB	844.81	30" RCP S = 839.36	24" RCP N = 839.44	15" RCP NW = 839.65		
r-2	CB	844.54	15" RCP SE = 840.43	15" RCP W = 840.54	12" RCP NW = 840.85		
r-3	CB	845.76	15" RCP E = 841.48	15" RCP W = 842.35			
r-4	CB	846.17	15" RCP E = 842.89	12" RCP S = 842.76			CONC. DEBRIS IN 15" E
r-5	CB	845.91	12" RCP N = 843.00				
r-6	CB	843.02	30" RCP S = 837.93	30" RCP N = 837.94	24" RCP W = 838.14		
r-7	CB	845.28	24" RCP E = 836.11	24" RCP W = 838.14			
r-8	CB	846.02	24" RCP E = 839.01	18" RCP SW = 840.24			
r-9	CB	846.46	18" RCP SW = 841.09	18" RCP NE = 841.13			
r-10	CB	846.44	18" RCP NE = 842.05	18" RCP NW = 842.09	12" RCP SW = 842.11		
r-11	CB	846.73	18" RCP E = 842.95	15" RCP SW = 843.02	6" RCP NW = 842.97		
r-12	CB	846.25	15" RCP NE = 843.54	12" RCP NW = 843.61	4" SE = 843.36		
r-13	CB	846.40	12" RCP SE = 844.03				
r-14	CB	846.13	12" RCP NE = 842.76				
r-15	CB	845.95	N/A				STRUCTURE FULL OF DEBRIS
r-16	CB	843.74	N/A				STRUCTURE FULL OF DEBRIS
r-17	CB	844.90	N/A				STRUCTURE FULL OF DEBRIS
r-18	CB	N/A	N/A				N.F.V. (EQUIPMENT OVER MH)
r-19	CB	843.80	N/A				STRUCTURE FULL OF DEBRIS
r-20	CB	844.39	N/A				STRUCTURE FULL OF DEBRIS
r-21	CB	844.10	N/A				STRUCTURE FULL OF DEBRIS
r-22	CB	844.01	N/A				STRUCTURE FULL OF DEBRIS
r-23	CB	842.96	N/A				STRUCTURE FULL OF DEBRIS
r-24	CB	845.91	12" RCP S = 841.74	8" PVC NE = 841.96			
r-25	CB	846.41	15" RCP SE = 840.82	12" RCP NE = 840.99	12" RCP SW = 841.16		
r-26	CB	846.24	12" RCP NE = 841.49	12" RCP NW = 842.12			
r-27	CB	845.24	12" RCP SE = 842.39	4" PVC SW = 843.41			
r-28	CB	844.09	12" RCP E = 841.02				
r-29	CB	843.20	12" RCP SE = 839.04	12" RCP W = 839.04			

PROJECT DATA

CLIENT: COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WA 98027

PROJECT ADDRESS: AIRPORT BOULEVARD
& ELLSWORTH ROAD

JURISDICTION: PITTSFIELD TOWNSHIP, MI

ZONING: TO BE DETERMINED

SETBACKS: FRONT: 50'
SIDE: 50'
REAR: 35'

BOUNDARIES INFORMATION: THIS PLAN HAS BEEN PREPARED BY MULVANNY G2 ARCHITECTURE USING INFORMATION PREPARED BY DESIGN STRATEGIES DATED.

SITE DATA:

TOTAL SITE AREA: 17.08 ACRES (743,915 S.F.)
BUILDING FOOTPRINT (WHSE & GAS): 148,489 S.F. (20%)
PERVIOUS AREA: 180,534 S.F. (24%)
IMPERVIOUS AREA: 414,892 S.F. (56%)

BUILDING DATA:

TOTAL BUILDING AREA: 148,489 S.F.

INCLUDES:

WAREHOUSE MAIN LEVEL	139,891 S.F.
ADDITIONAL SALES FLOOR (MULTI-LEVEL)	S.F.
TIRE CENTER	5,807 S.F.
OUTSIDE FOOD SERVICE	1,316 S.F.
MEZZANINE (OCCUPIED)	1,475 S.F.
ENCLOSED CANOPY	S.F.
LIQUOR SALES	S.F.
OUTSIDE FREEZER / COOLER	S.F.
OTHER	S.F.

PARKING DATA:

TOTAL PARKING: 728 STALLS

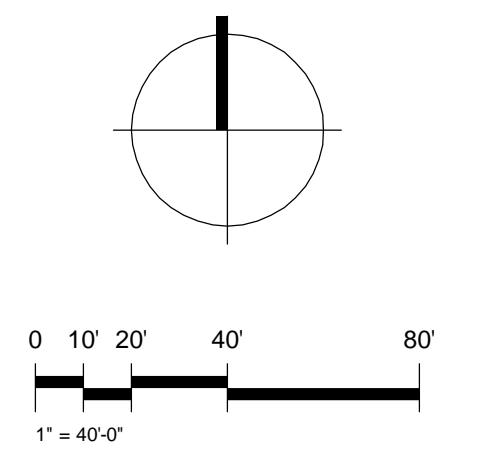
INCLUDES:

MAIN LEVEL PARKING PROVIDED:	
⊙ 10' WIDE STALLS	712 STALLS
⊙ 9' WIDE STALLS	0 STALLS
⊙ ACCESSIBLE STALLS	16 STALLS

NO. OF STALLS PER 1000 SF OF BUILDING AREA: 4.90 STALLS

JURISDICTIONAL PARKING REQUIRED: STALLS

NOTES:
EXISTING CONDITIONS TO BE FIELD VERIFIED.



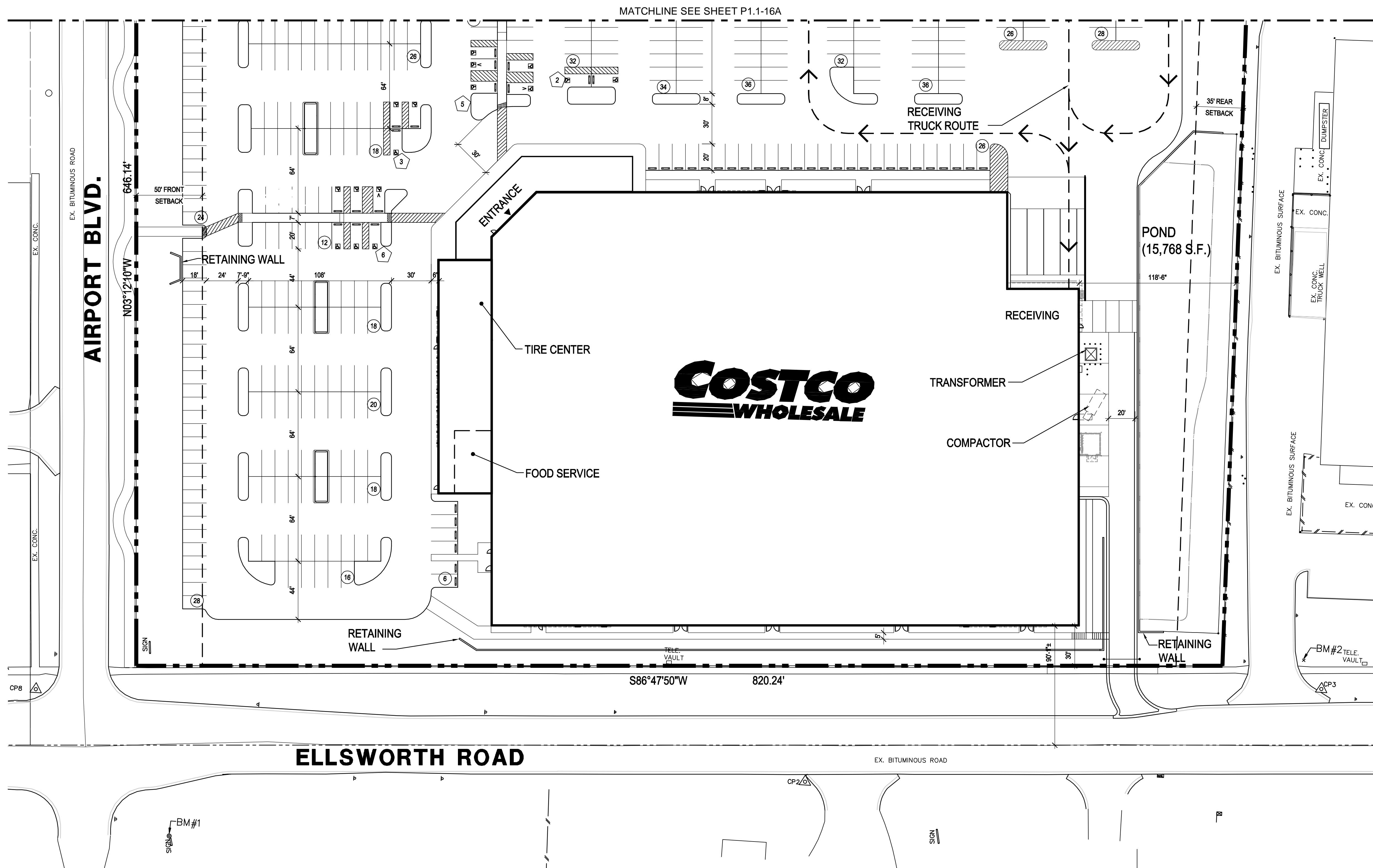
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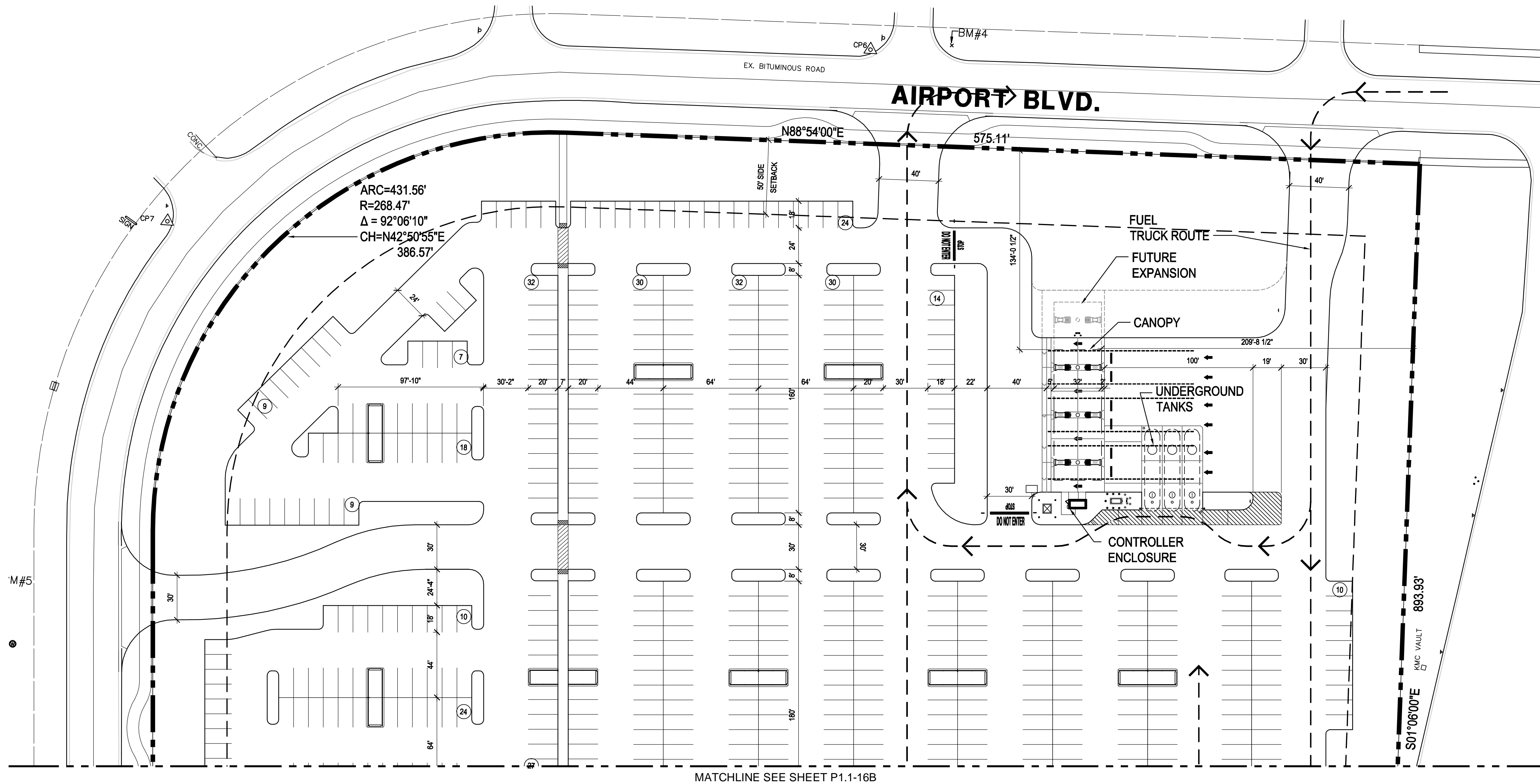


1110 112TH AVE. NE | SUITE 500
BELLEVUE, WA | 98004
T 425.463.2000 | F 425.463.2002

MulvannyG2.com

09-0295-01
AUGUST 19, 2010
DIMENSIONAL
SITE PLAN - SOUTH





PROJECT DATA

CLIENT: COSTCO WHOLESALE
 999 LAKE DRIVE
 ISSAQUAH, WA 98027

PROJECT ADDRESS: AIRPORT BOULEVARD
 & ELLSWORTH ROAD

JURISDICTION: PITTSFIELD TOWNSHIP, MI

ZONING: TO BE DETERMINED

SETBACKS: FRONT: 50'
 SIDE: 50'
 REAR: 35'

BOUNDARIES INFORMATION: THIS PLAN HAS BEEN PREPARED BY
 MULVANNY G2 ARCHITECTURE USING
 INFORMATION PREPARED BY DESIGN
 STRATEGIES DATED.

SITE DATA:

TOTAL SITE AREA: 17.08 ACRES (743,915 S.F.)

BUILDING FOOTPRINT (WHSE & GAS): 148,489 S.F. (20%)

PERVIOUS AREA: 180,534 S.F. (24%)

IMPERVIOUS AREA: 414,892 S.F. (56%)

BUILDING DATA:

TOTAL BUILDING AREA: 148,489 S.F.

INCLUDES:

WAREHOUSE MAIN LEVEL	139,891 S.F.
ADDITIONAL SALES FLOOR (MULTI-LEVEL)	S.F.
TIRE CENTER	5,807 S.F.
OUTSIDE FOOD SERVICE	1,316 S.F.
MEZZANINE (OCCUPIED)	1,475 S.F.
ENCLOSED CANOPY	S.F.
LIQUOR SALES	S.F.
OUTSIDE FREEZER / COOLER	S.F.
OTHER	S.F.

PARKING DATA:

TOTAL PARKING: 728 STALLS

INCLUDES:

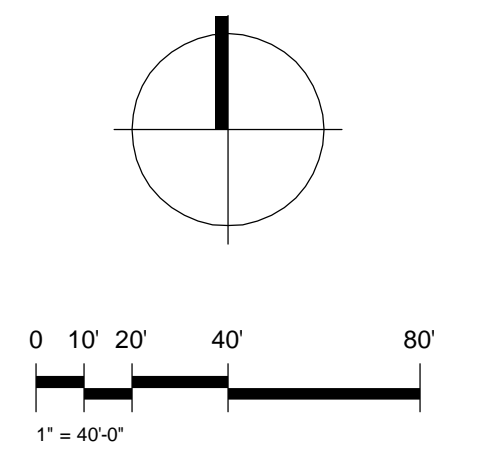
MAIN LEVEL PARKING PROVIDED:

⊙ 10' WIDE STALLS	712 STALLS
⊙ 9' WIDE STALLS	0 STALLS
⊙ ACCESSIBLE STALLS	16 STALLS

NO. OF STALLS PER 1000 SF OF BUILDING AREA: 4.90 STALLS

JURISDICTIONAL PARKING REQUIRED: STALLS

NOTES:
 EXISTING CONDITIONS TO BE FIELD VERIFIED.



PITTSFIELD TOWNSHIP, MI



1110 112TH AVE. NE | SUITE 500
 BELLEVUE, WA | 98004
 t 425.463.2000 | f 425.463.2002

MulvannyG2.com

09-0295-01
 AUGUST 19, 2010
 DIMENSIONAL
 SITE PLAN - NORTH

COSTCO WHOLESALE

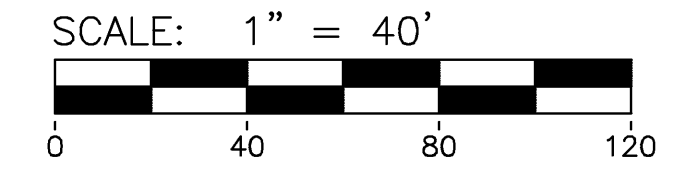
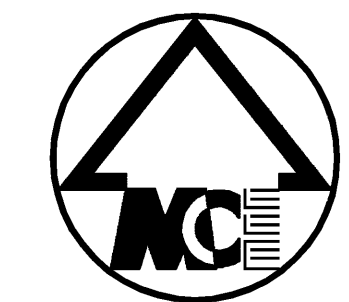
PITTSFIELD TOWNSHIP, MICHIGAN

DIMENSIONAL SITE PLAN - NORTH

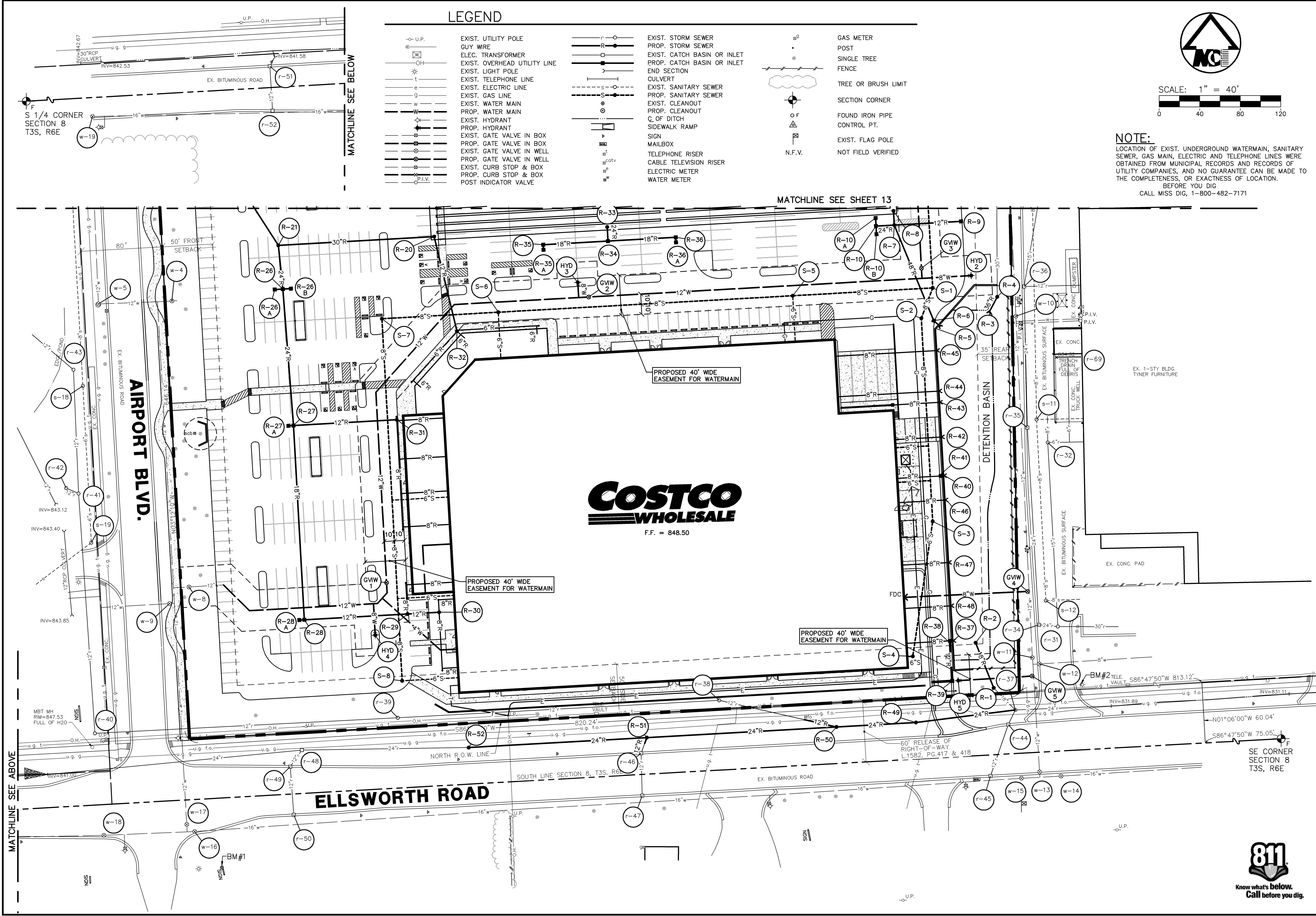
AUGUST 19, 2010

LEGEND

	EXIST. UTILITY POLE		EXIST. STORM SEWER		GAS METER
	GUY WIRE		PROP. STORM SEWER		POST
	ELEC. TRANSFORMER		EXIST. CATCH BASIN OR INLET		SINGLE TREE
	EXIST. OVERHEAD UTILITY LINE		PROP. CATCH BASIN OR INLET		FENCE
	EXIST. LIGHT POLE		END SECTION		TREE OR BRUSH LIMIT
	EXIST. TELEPHONE LINE		CULVERT		SECTION CORNER
	EXIST. ELECTRIC LINE		EXIST. SANITARY SEWER		FOUND IRON PIPE
	EXIST. GAS LINE		PROP. SANITARY SEWER		CONTROL PT.
	EXIST. WATER MAIN		EXIST. CLEANOUT		EXIST. FLAG POLE
	PROP. WATER MAIN		PROP. CLEANOUT		NOT FIELD VERIFIED
	EXIST. HYDRANT		C. OF DITCH		
	PROP. HYDRANT		SIDEWALK RAMP		
	EXIST. GATE VALVE IN BOX		SIGN		
	PROP. GATE VALVE IN BOX		MAILBOX		
	EXIST. GATE VALVE IN WELL		TELEPHONE RISER		
	PROP. GATE VALVE IN WELL		CABLE TELEVISION RISER		
	EXIST. CURB STOP & BOX		ELECTRIC METER		
	PROP. CURB STOP & BOX		WATER METER		
	POST INDICATOR VALVE				



NOTE:
 LOCATION OF EXIST. UNDERGROUND WATERMAIN, SANITARY SEWER, GAS MAIN, ELECTRIC AND TELEPHONE LINES WERE OBTAINED FROM MUNICIPAL RECORDS AND RECORDS OF UTILITY COMPANIES, AND NO GUARANTEE CAN BE MADE TO THE COMPLETENESS, OR EXACTNESS OF LOCATION.
 BEFORE YOU DIG
 CALL MISS DIG, 1-800-482-7171



COSTCO
WHOLESALE
 F.F. = 848.50

MIDWESTERN CONSULTING
 Civil, Environmental and Transportation Engineers
 Planners, Surveyors, Landscape Architects
 3815 Plaza Drive
 Ann Arbor, Michigan 48108
 Phone: 734.995.0200
 Fax: 734.995.0599

CLIENT
 COSTCO WHOLESALE
 999 LAKE DRIVE
 ISSAQUAH, WA 98027

COSTCO
 REZONING AND PRELIMINARY SITE PLAN
 UTILITY PLAN - SOUTH

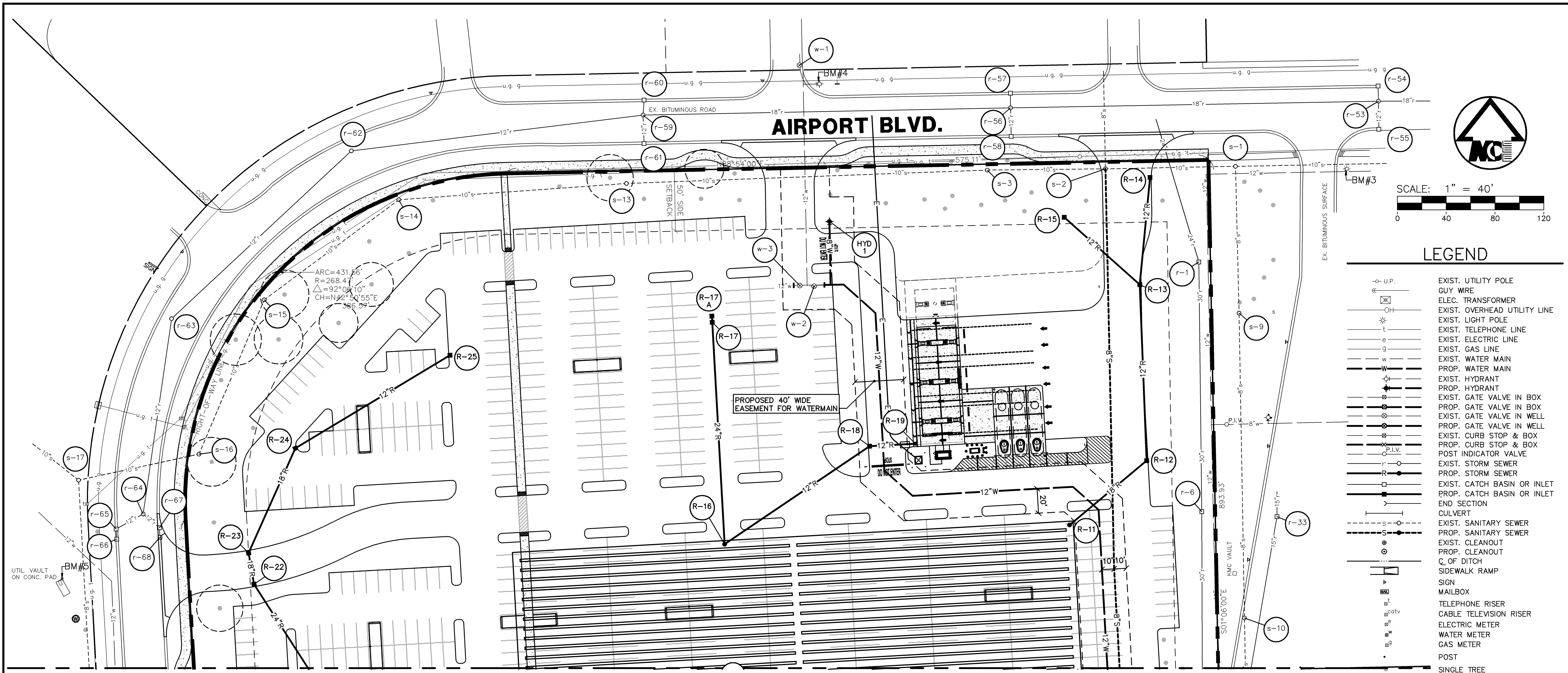
12

JOB No.	10046
DATE	8-19-10
SHEET	12 OF 20
DESIGNER	WJL
ENGINEER	JAF
TECH	DWB
PRELIM	10046/PT
DATE	
REV.	



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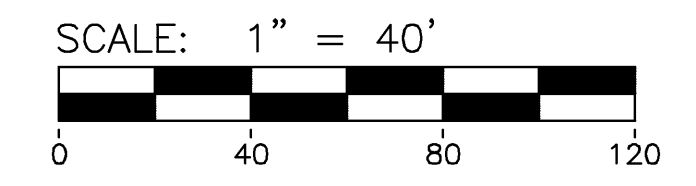
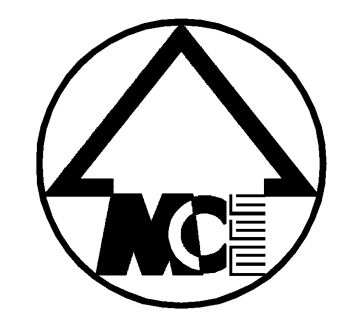
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AIRPORT BLVD.

PROPOSED 40' WIDE EASEMENT FOR WATERMAIN

MATCHLINE SEE SHEET 12



LEGEND

- EXIST. UTILITY POLE
- GUY WIRE
- ELEC. TRANSFORMER
- EXIST. OVERHEAD UTILITY LINE
- EXIST. LIGHT POLE
- EXIST. TELEPHONE LINE
- EXIST. ELECTRIC LINE
- EXIST. GAS LINE
- EXIST. WATER MAIN
- PROP. WATER MAIN
- EXIST. HYDRANT
- PROP. HYDRANT
- EXIST. GATE VALVE IN BOX
- PROP. GATE VALVE IN BOX
- EXIST. GATE VALVE IN WELL
- PROP. GATE VALVE IN WELL
- EXIST. CURB STOP & BOX
- PROP. CURB STOP & BOX
- POST INDICATOR VALVE
- EXIST. STORM SEWER
- PROP. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- PROP. CATCH BASIN OR INLET
- END SECTION
- CULVERT
- EXIST. SANITARY SEWER
- PROP. SANITARY SEWER
- EXIST. CLEANOUT
- PROP. CLEANOUT
- C. OF DITCH
- SIDEWALK RAMP
- SIGN
- MAILBOX
- TELEPHONE RISER
- CABLE TELEVISION RISER
- ELECTRIC METER
- WATER METER
- GAS METER
- POST
- SINGLE TREE
- FENCE
- TREE OR BRUSH LIMIT
- SECTION CORNER
- FOUND IRON PIPE
- CONTROL PT.
- EXIST. FLAG POLE
- NOT FIELD VERIFIED

NOTE:
 LOCATION OF EXIST. UNDERGROUND WATERMAIN, SANITARY SEWER, GAS MAIN, ELECTRIC AND TELEPHONE LINES WERE OBTAINED FROM MUNICIPAL RECORDS AND RECORDS OF UTILITY COMPANIES, AND NO GUARANTEE CAN BE MADE TO THE COMPLETENESS, OR EXACTNESS OF LOCATION.
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MIDWESTERN CONSULTING
 Civil, Environmental and Transportation Engineers
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 3815 Plaza Drive
 Ann Arbor, Michigan 48108
 Phone: 734.995.0200
 Fax: 734.995.0599

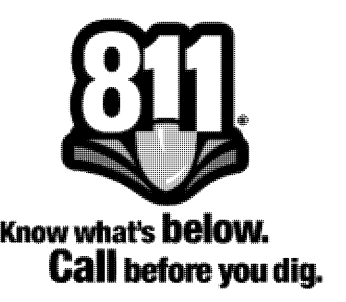
CLIENT
 COSTCO WHOLESALE
 999 LAKE DRIVE
 ISSAQUAH, WA 98027

COSTCO
 REZONING AND PRELIMINARY SITE PLAN
 UTILITY PLAN - NORTH

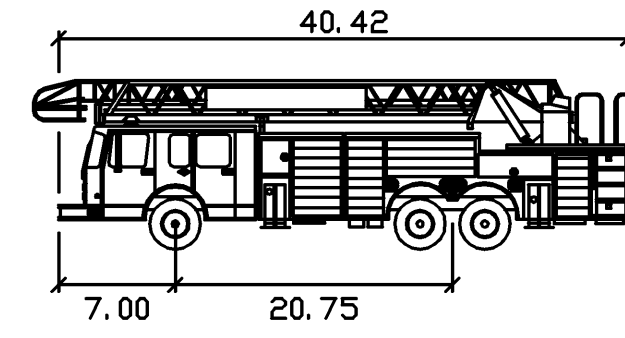
13

DATE: 8-19-10	REV. DATE
SHEET: 13 OF 20	
CADD: WAJ	
ENG: JAF	
TECH: DMB	
PRELIM: 10046/UP1	
PPF	

JOB No. **10046**
 REVISIONS:



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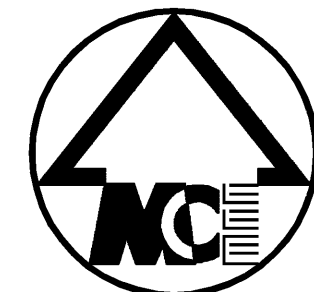


L3-PITT feet
Width : 8.00
Track : 8.00
Lock to Lock Time: 6.00
Steering Angle : 33.00

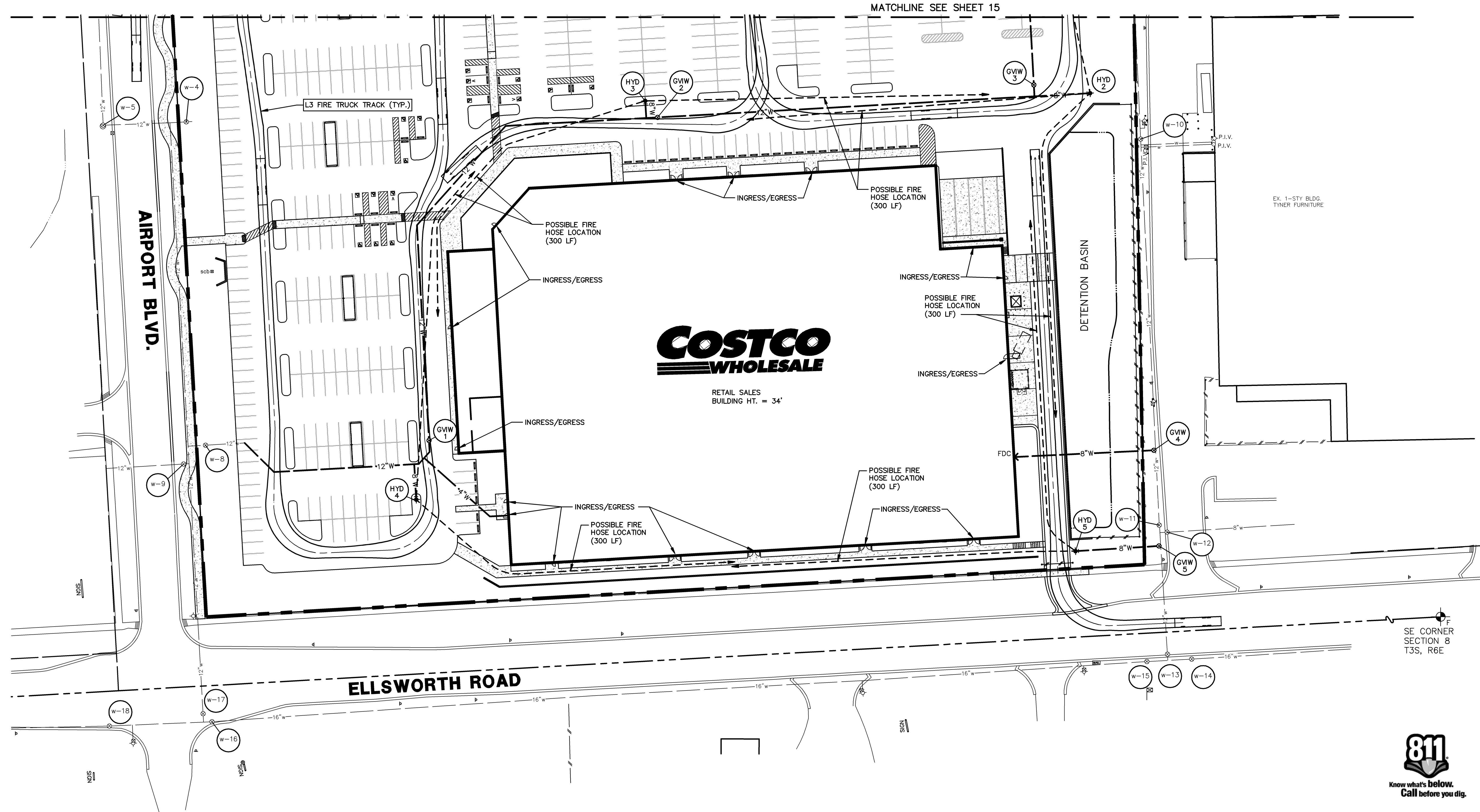
L3 FIRE TRUCK

LEGEND

- W --- EXIST. WATER MAIN
- W --- PROP. WATER MAIN
- H --- EXIST. HYDRANT
- H --- PROP. HYDRANT
- G --- EXIST. GATE VALVE IN BOX
- G --- PROP. GATE VALVE IN BOX
- G --- EXIST. GATE VALVE IN WELL
- G --- PROP. GATE VALVE IN WELL
- C --- EXIST. CURB STOP & BOX
- C --- PROP. CURB STOP & BOX
- P.I.V. --- POST INDICATOR VALVE



SCALE: 1" = 40'
0 40 80 120

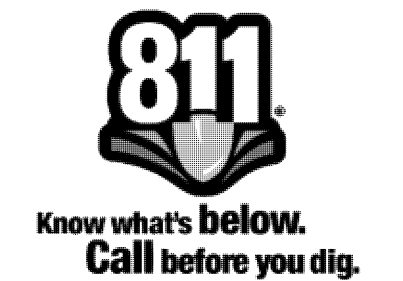


MATCHLINE SEE SHEET 15

COSTCO
WHOLESALE

RETAIL SALES
BUILDING HT. = 34'

SE CORNER
SECTION 8
T3S, R6E



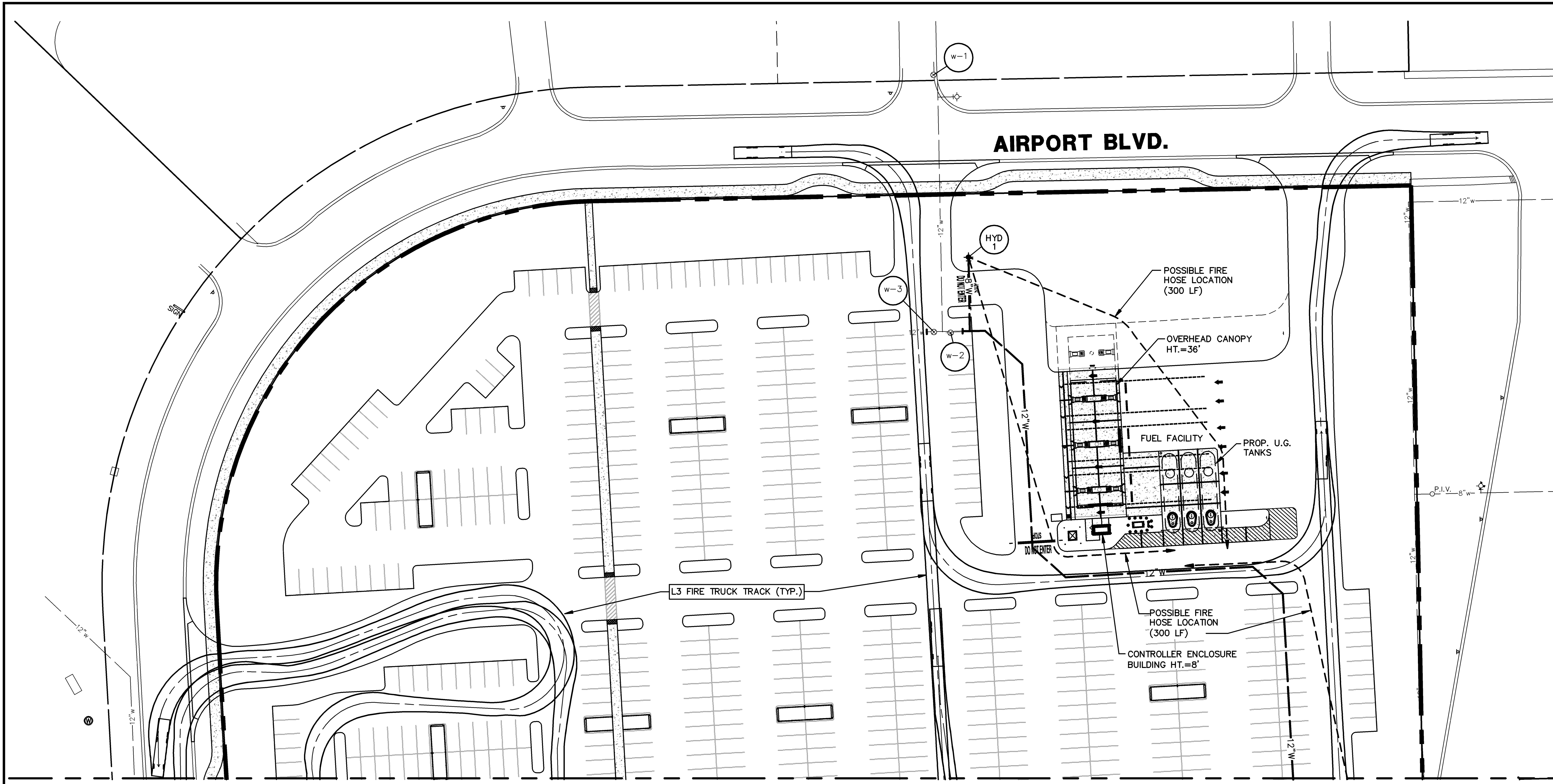
MIDWESTERN CONSULTING
Civil, Environmental and
Transportation Engineers
Planners, Surveyors
Landscape Architects
3815 Plaza Drive
Ann Arbor, Michigan 48108
Phone: 734.995.0200
Fax: 734.995.0599

CLIENT
COSTCO WHOLESAL
999 LAKE DRIVE
ISSAQUAH, WA 98027

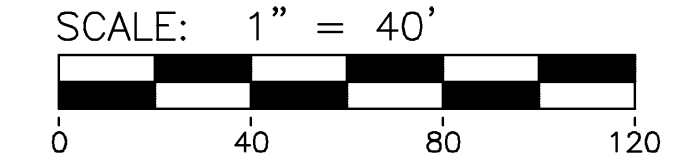
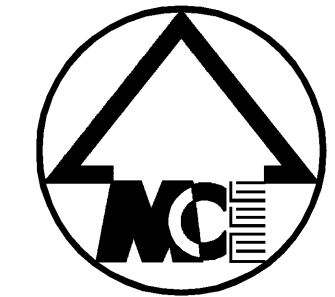
COSTCO
REZONING AND PRELIMINARY SITE PLAN
FIRE PROTECTION PLAN - SOUTH

14

DATE: 8-19-10	REV. DATE
SHEET: 14 OF 20	
CADD: WAJ	
ENG: JAF	
TECH: DMB	
PRELIM: 10046\FPI	
PROJ: 10046	
JOB No. 10046	
REVISIONS:	

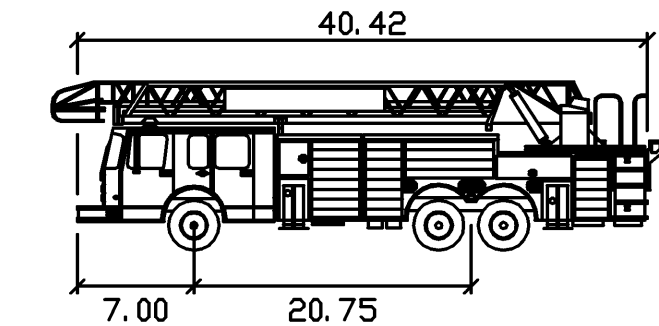


MATCHLINE SEE SHEET 14



LEGEND

- w --- EXIST. WATER MAIN
- W --- PROP. WATER MAIN
- H --- EXIST. HYDRANT
- H --- PROP. HYDRANT
- G --- EXIST. GATE VALVE IN BOX
- G --- PROP. GATE VALVE IN BOX
- G --- EXIST. GATE VALVE IN WELL
- G --- PROP. GATE VALVE IN WELL
- C --- EXIST. CURB STOP & BOX
- C --- PROP. CURB STOP & BOX
- P.I.V. --- POST INDICATOR VALVE



L3-PITT feet
 Width : 8.00
 Track : 8.00
 Lock to Lock Time: 6.00
 Steering Angle : 33.00
 L3 FIRE TRUCK

CLIENT
 COSTCO WHOLESALE
 999 LAKE DRIVE
 ISSAQUAH, WA 98027

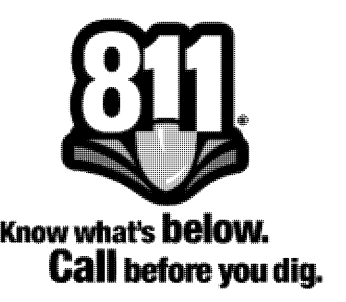
COSTCO
 REZONING AND PRELIMINARY SITE PLAN
 FIRE PROTECTION PLAN - NORTH

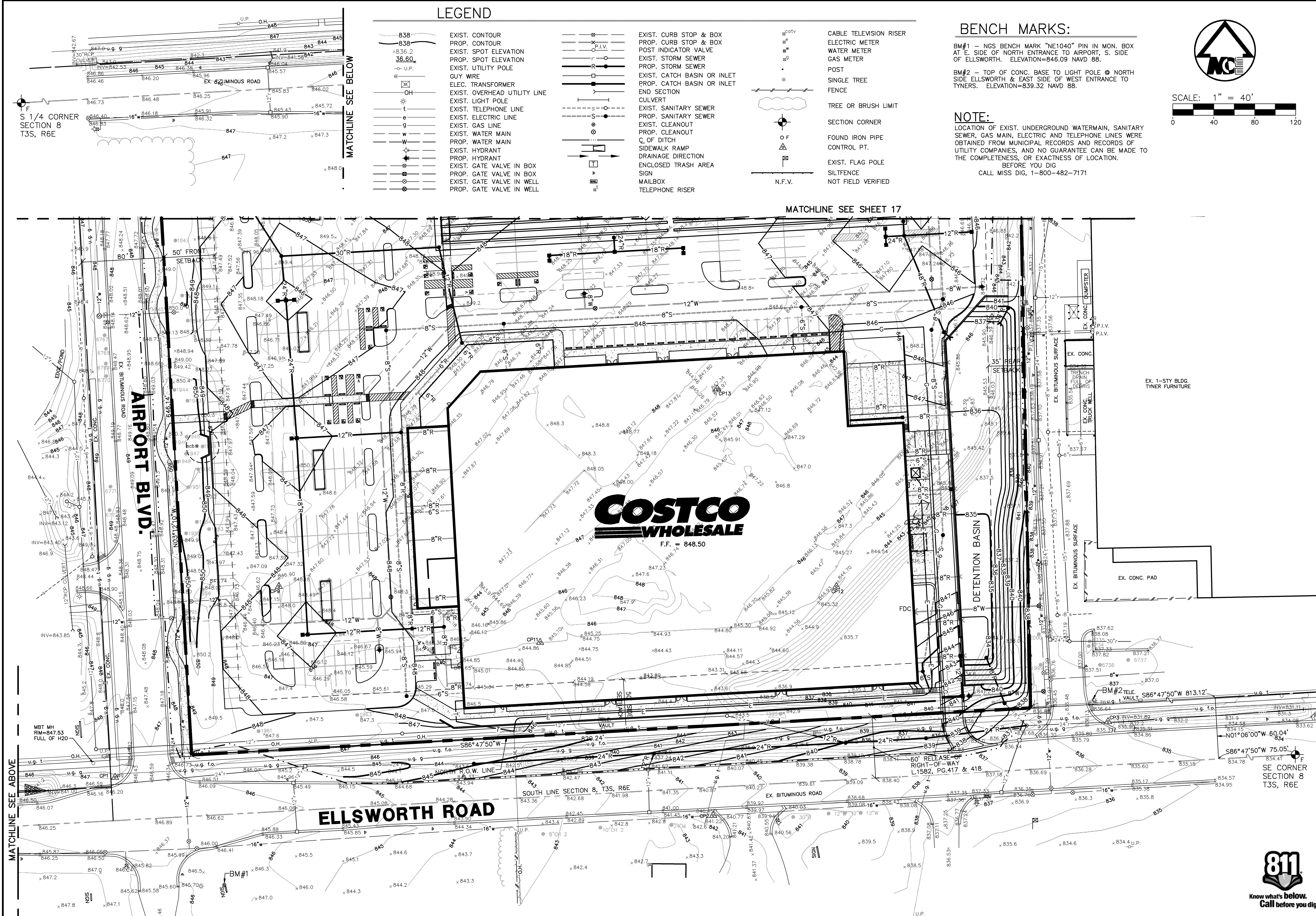
15

DATE: 8-19-10
 SHEET: 15 OF 20
 CADD: WAJ
 ENG: JAF
 TECH: DMB
 PRELIM: 10046FP1
 PLOT: 10046FP1

REV. DATE	REV. DATE

10046





LEGEND

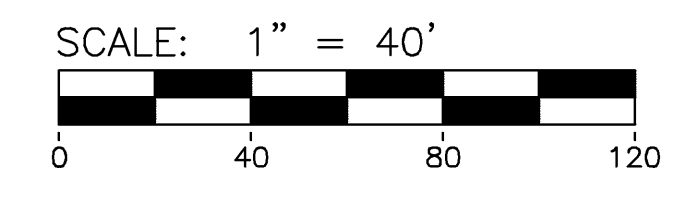
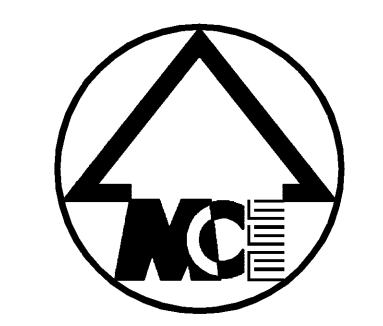
— 838 —	EXIST. CONTOUR	— X —	EXIST. CURB STOP & BOX	— a ^{cstv} —	CABLE TELEVISION RISER
— 36.60 —	PROP. CONTOUR	— P.I.V. —	PROP. CURB STOP & BOX	— a ^m —	ELECTRIC METER
— U.P. —	EXIST. SPOT ELEVATION	— R —	POST INDICATOR VALVE	— a ^w —	WATER METER
— OH —	PROP. SPOT ELEVATION	— R —	EXIST. STORM SEWER	— a ^g —	GAS METER
— U.P. —	EXIST. UTILITY POLE	— R —	PROP. STORM SEWER	— a ^g —	POST
— U.P. —	GUY WIRE	— R —	EXIST. CATCH BASIN OR INLET	— a ^g —	SINGLE TREE
— U.P. —	ELEC. TRANSFORMER	— R —	PROP. CATCH BASIN OR INLET	— a ^g —	FENCE
— U.P. —	EXIST. OVERHEAD UTILITY LINE	— R —	END SECTION	— a ^g —	TREE OR BRUSH LIMIT
— U.P. —	EXIST. LIGHT POLE	— R —	CULVERT	— a ^g —	SECTION CORNER
— U.P. —	EXIST. TELEPHONE LINE	— R —	EXIST. SANITARY SEWER	— a ^g —	FOUND IRON PIPE
— U.P. —	EXIST. ELECTRIC LINE	— R —	PROP. SANITARY SEWER	— a ^g —	CONTROL PT.
— U.P. —	EXIST. GAS LINE	— R —	EXIST. CLEANOUT	— a ^g —	EXIST. FLAG POLE
— U.P. —	EXIST. WATER MAIN	— R —	PROP. CLEANOUT	— a ^g —	SILTFENCE
— U.P. —	PROP. WATER MAIN	— R —	C. OF DITCH	— a ^g —	NOT FIELD VERIFIED
— U.P. —	EXIST. HYDRANT	— R —	SIDEWALK RAMP	— a ^g —	
— U.P. —	PROP. HYDRANT	— R —	DRAINAGE DIRECTION	— a ^g —	
— U.P. —	EXIST. GATE VALVE IN BOX	— R —	ENCLOSED TRASH AREA	— a ^g —	
— U.P. —	PROP. GATE VALVE IN BOX	— R —	MAILBOX	— a ^g —	
— U.P. —	EXIST. GATE VALVE IN WELL	— R —	TELEPHONE RISER	— a ^g —	
— U.P. —	PROP. GATE VALVE IN WELL	— R —		— a ^g —	

BENCH MARKS:

BM#1 - NGS BENCH MARK "NE1040" PIN IN MON. BOX AT E. SIDE OF NORTH ENTRANCE TO AIRPORT, S. SIDE OF ELLSWORTH. ELEVATION=846.09 NAVD 88.
 BM#2 - TOP OF CONC. BASE TO LIGHT POLE @ NORTH SIDE ELLSWORTH & EAST SIDE OF WEST ENTRANCE TO TYNERS. ELEVATION=839.32 NAVD 88.

NOTE:

LOCATION OF EXIST. UNDERGROUND WATERMAIN, SANITARY SEWER, GAS MAIN, ELECTRIC AND TELEPHONE LINES WERE OBTAINED FROM MUNICIPAL RECORDS AND RECORDS OF UTILITY COMPANIES, AND NO GUARANTEE CAN BE MADE TO THE COMPLETENESS, OR EXACTNESS OF LOCATION. BEFORE YOU DIG CALL MISS DIG, 1-800-482-7171

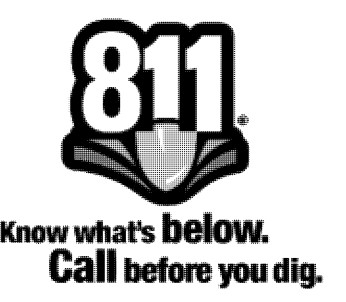


CLIENT
 COSTCO WHOLESALE
 999 LAKE DRIVE
 ISSAQUAH, WA 98027

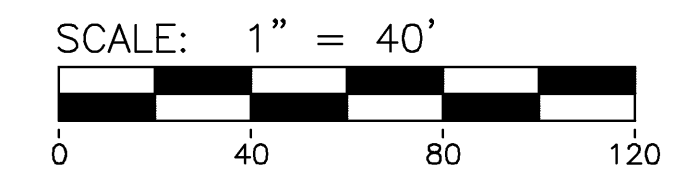
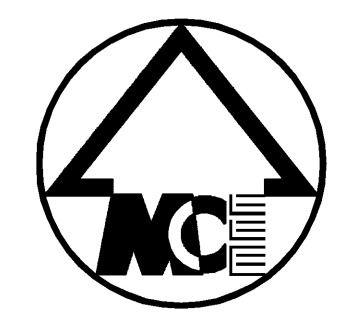
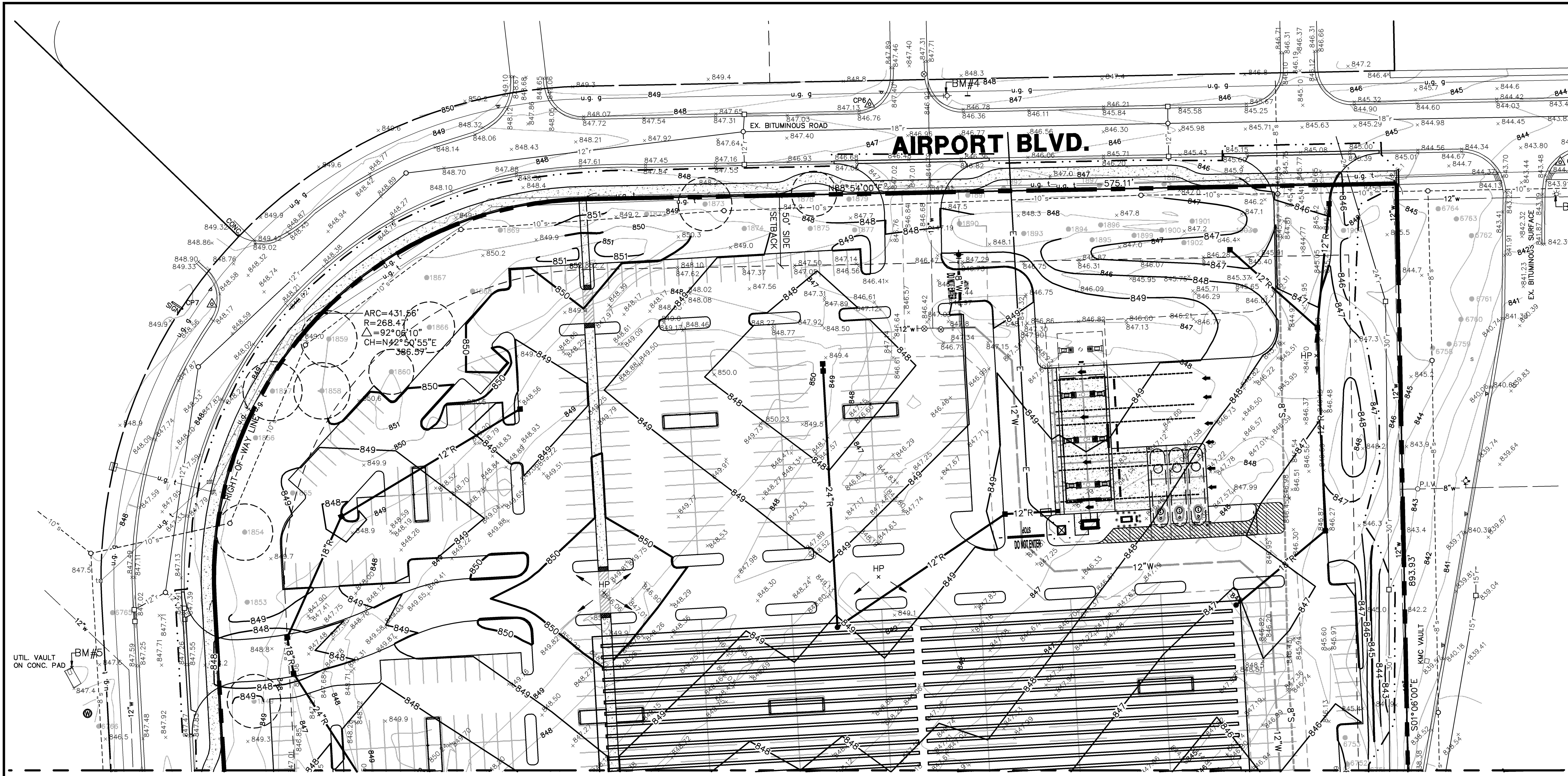
COSTCO
 REZONING AND PRELIMINARY SITE PLAN
 GRADING PLAN - SOUTH

16

JOB NO.	10046
DATE	8-19-10
SHEET	16 OF 20
DATE	
REV.	
DATE	
REV.	
DATE	
REV.	
DATE	
REV.	



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LEGEND

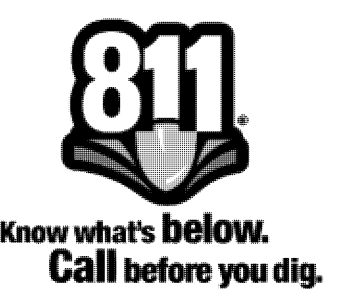
- 838 EXIST. CONTOUR
- 836 PROP. CONTOUR
- 836.2 EXIST. SPOT ELEVATION
- 836.60 PROP. SPOT ELEVATION
- U.P. EXIST. UTILITY POLE
- GUY WIRE
- ELEC. TRANSFORMER
- OH EXIST. OVERHEAD UTILITY LINE
- EXIST. LIGHT POLE
- EXIST. TELEPHONE LINE
- EXIST. ELECTRIC LINE
- EXIST. GAS LINE
- EXIST. WATER MAIN
- PROP. WATER MAIN
- EXIST. HYDRANT
- PROP. HYDRANT
- EXIST. GATE VALVE IN BOX
- PROP. GATE VALVE IN BOX
- EXIST. GATE VALVE IN WELL
- PROP. GATE VALVE IN WELL
- EXIST. CURB STOP & BOX
- PROP. CURB STOP & BOX
- POST INDICATOR VALVE
- EXIST. STORM SEWER
- PROP. STORM SEWER
- EXIST. CATCH BASIN OR INLET
- PROP. CATCH BASIN OR INLET
- END SECTION
- CULVERT
- EXIST. SANITARY SEWER
- PROP. SANITARY SEWER
- EXIST. CLEANOUT
- PROP. CLEANOUT
- C. OF DITCH
- SIDEWALK RAMP
- DRAINAGE DIRECTION
- ENCLOSED TRASH AREA
- SIGN
- MAILBOX
- TELEPHONE RISER
- CABLE TELEVISION RISER
- ELECTRIC METER
- WATER METER
- GAS METER
- POST
- SINGLE TREE
- FENCE
- TREE OR BRUSH LIMIT
- SECTION CORNER
- FOUND IRON PIPE
- CONTROL PT.
- EXIST. FLAG POLE
- SILTFENCE
- N.F.V. NOT FIELD VERIFIED

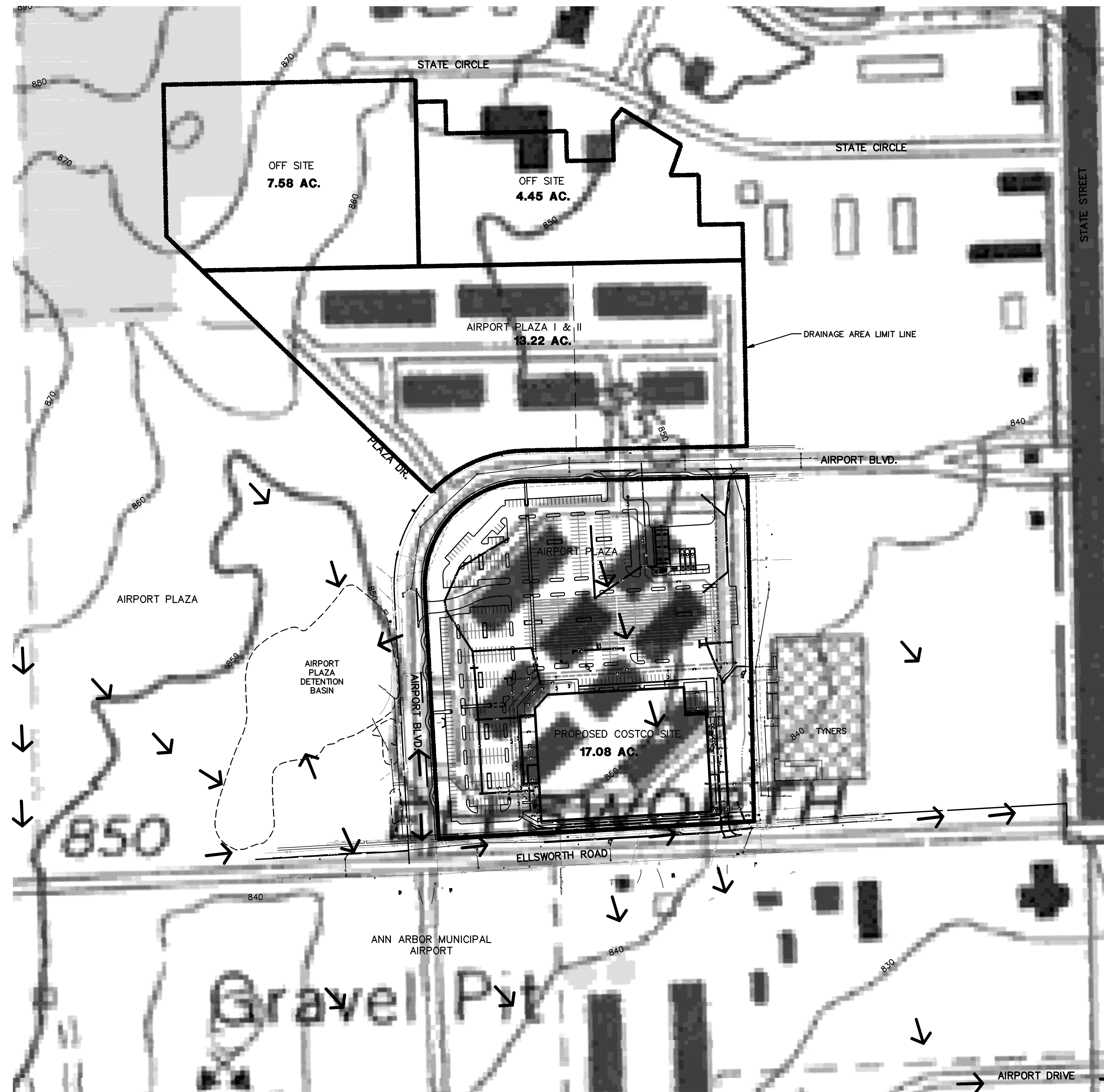
MATCHLINE SEE SHEET 16

DATE: 8-19-10	REV. DATE
SHEET: 17 OF 20	
CADD: WAJ	
ENG: JAF	
TECH: DMB	
PRELIM: 10046GPT	
PPF	

BENCH MARKS:

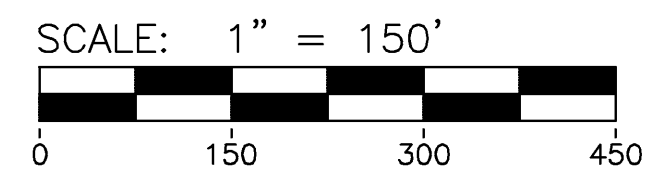
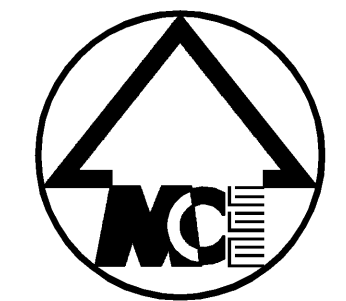
- BM#3 - TOP OF CONC. BASE TO LIGHT POLE @ SOUTH SIDE OF AIRPORT BLVD. & EAST SIDE OF WESTERLY ENTRANCE TO TYNERS. ELEVATION=845.94 NAVD 88.
- BM #4 - TOP OF MAIN STEAMER TO HYDRANT @ NORTH SIDE OF AIRPORT BLVD. & EAST SIDE OF 2ND ENTRANCE WEST OF EAST PROPERTY LINE. ELEVATION=848.89 NAVD 88.
- BM#5 - CHISELED "X" NORTH MOST CORNER, TOP OF CONC. LIFT STATION @ NE CORNER OF POND ON WEST SIDE OF AIRPORT BLVD. ELEVATION=848.20 NAVD 88.





LEGEND

- 850 USGS CONTOUR
- DRAINAGE AREA BOUNDARY



STORMWATER DETENTION CALCULATIONS

Runoff Coefficients (C)

Existing undeveloped area	@	0.15
Existing Building, Pavement	@	0.90
Proposed Building and Pavement	@	0.95
Proposed Impervious/Lawn Area	@	0.25

Area Analysis

- A. Area south of State Circle**
- b. Existing Undeveloped area = 7.58 Acres @ 0.25
 - c. Existing Developed area = 13.22 AC.
 - 1. Impervious area = 2.72 Acres @ 0.90
 - 2. Pervious area = 1.73 Acres @ 0.15
 - Subtotal = 12.03 Acres @ 0.38
- B. Area north of Airport Blvd (aka Airport Plaza I & II)**
- a. Existing Impervious area = 8.96 Acres @ 0.90
 - b. Existing Pervious area = 4.26 Acres @ 0.15
 - Subtotal = 13.22 Acres @ 0.66
- C. Costco Parcel**
- a. Proposed Impervious area = 12.62 Acres @ 0.95
 - b. Proposed Pervious area = 4.46 Acres @ 0.25
 - Subtotal = 17.08 Acres @ 0.77
- Grand Total Area Contributing Area = 42.33 Acres

C. Calculate Average Runoff Coefficient

$$C_{avg} = \frac{(12.03 \times 0.38) + (13.22 \times 0.66) + (17.08 \times 0.77)}{42.33} = 0.625$$

D. Detention Volumes:

- First Flush: $Vol_{FF} = 1815 \times 42.33 \times 0.625 = 48,018 \text{ CF}$
- Bank Full: $Vol_{BF} = 8170 \times 42.33 \times 0.625 = 216,148 \text{ CF}$
- 100-Year: WCVRC Method of Calculating Detention Volume
- $Q_A = 42.33 \text{ acres} \times 0.15 \text{ cfs/acre} + \text{infiltration rate under pond and UG storage}$
- Infiltration area = 1032 sq ft @ 834' + (460 ft x 128 ft under UG storage) = 59,912 sq ft
- Infiltration rate (@ 50%) determined from field testing = 10 inches per hour or 0.0002 feet per sec
- $$Q_A = (42.33 \times 0.15) + (0.0002 \times 59,912) = 18.332$$
- $Q_0 = Q_A / AC = 18.332 / (42.33 \times 0.625) = 0.693$
- $T = -25 + (10312.5 / Q_0)^{0.5} = 97.0 \text{ mins.}$
- $V_0 = 16500T / (T + 25) - 40 Q_0 T = 10,430 \text{ CF/AC}$
- $V_1 = V_0 \times A \times C = 275,946 \text{ CF}$

D. Detention Volumes Provided: (By: Volume = 0.33 H (A₁ + A₂ + (A₁A₂)^{0.5}))

Elevation	Area (SF)	Volume (CF)	Total (CF)
832.5	0	0	0
834.0	1037	518	518
835.0	4508	2569	3087
836.0	9959	7056	10143
837.0	15768	12753	22896
838.0	17547	16649	39545
839.0*	19334	18433	57978
840.0	21140	22917	80895

*Elevation of 839.0 is the proposed 100 year high water elevation to provide 1 foot of freeboard in the detention basin

Volume stored in 6 foot diameter pipes = 28,274 cf/ft
 Pipes provided = 460 ft/row x 16 rows + 126 ft/lateral row x 3 rows = 7738 ft
 Vol = 7738 x 28.274 = 218,784 cf

E. Storage Elevations:

1. First Flush: In underground pipes/storage
 Ratio of vol/vol = 48,018/218,784 = 0.22
 From hydraulic nomograph, the depth in the pipe would be 0.28 x 6.0 = 1.68
 Assuming no storage in the detention basin the approximate First Flush water elevation would be H_w = 833.0 + 1.68 = 834.68

2. Bankfull:
- a. In detention basin
 Vol = 35,000 CF @ elevation = 837.75
 - b. In UG pipes
 Vol = 216,148 - 35,000 = 181,148 CF
 Ratio of vol/vol = 181,148/218,784 = 0.83
 From hydraulic nomograph, the depth in the pipe would be 0.79 x 6.0 = 4.75
 Bankfull water elevation would be H_w = 833.0 + 4.75 = 837.75

2. 100 year:
- a. In detention basin
 Vol = 57,633 CF @ elevation = 839.00
 - b. In UG pipes
 Vol = 218,784
- 100 year volume provided = 276,417 CF @ elevation 839.00

F. Outlet Structure

- First Flush: $Q_{FF} = 48,018 / 24 / 3,600 = 0.556 \text{ CFS}$
 $H_{FF} = 2 / 3 (834.68 - (882.5 + 0.17)) = 1.340 \text{ ft}$
 $A = 0.556 / 0.62 (2 \times 32.2 \times 1.340)^{0.5} = 0.0965 \text{ SF}$
- A 2-inch diameter hole has an area of 0.0218 SF.
 Use four (4) 2-inch diameter holes with a centerline elevation of 882.67.
- $Q = 0.62 \times (4 \times 0.0218) \times (2 \times 32.2 \times 1.340)^{0.5} = 0.502 \text{ CFS}$
 $\text{Time} = 48,018 \text{ CF} / 0.502 \text{ CFS} \times 1/3600 = 26.6 \text{ hrs}$

- Bankfull: $H_{BF} = 2/3 (837.75 - 832.67) = 3.39 \text{ ft}$
 $Q = 0.62 \times (4 \times 0.0218) \times (2 \times 32.2 \times 3.39)^{0.5} = 0.599 \text{ CFS}$
 $\text{Time} = 216,148 \text{ CF} / 0.599 \text{ CFS} \times 1/3600 = 100 \text{ hrs}$
 Time exceeds 40 hrs (max.)
 Target time for detention will be assumed to be 45 hours
- $V_{det} = V_{FF} - V_{FF} = 216,148 - 48,018 = 168,130 \text{ CF}$
 $T_{det} = T_{FF} - T_{FF} = 45 - 26.6 = 18.4 \text{ hrs}$

- Volume through four (4) 2-inch diameter holes:
- $H_{FF} = 2/3 (ELEV_{FF} - ELEV_{FF}) + (ELEV_{FF} - ELEV_{FF}) = 4.06 \text{ FT}$
 $Q_1 = 0.62 \times 4 \times 0.0218 \times (2 \times 32.2 \times 4.06)^{0.5} = 0.874 \text{ CFS}$
- $V_1 = 0.874 \times 18.4 \times 3600 = 57,894 \text{ CF}$
 $V_2 = V_{det} - V_1 = 168,130 - 57,894 = 110,236 \text{ CF}$
- $H_2 = V_2 / T_{REV} = 110,236 / (18.4 \times 3600) = 1.664 \text{ CFS}$
 $H_2 = 2/3 (ELEV_{FF} - ELEV_{FF}) = 2/3 (837.75 - 834.68) = 2.05 \text{ FT}$
- $A = 1.664 / 0.62 (2 \times 32.2 \times 2.05)^{0.5} = 0.236 \text{ SF}$

- A 2 1/2-inch diameter hole has an area of 0.0341 SF.
 Use six (6) 2 1/2-inch diameter holes at an elevation of 834.68.

- (3) 100-Year: Allowable Discharge (Not including infiltration)
- $Q_1 = 0.15 \text{ CFS} \times 42.33 \text{ ac} = 6.35 \text{ CFS}$
- $Q = 0.62 \times 4 \times 0.0218 \times (2 \times 32.2 \times (839.00 - 832.67)^{0.5}) + 0.62 \times 6 \times 0.0341 \times (2 \times 32.2 \times (839.00 - 834.68)^{0.5}) = 3.208 \text{ CF}$
- $Q_{100} = 6.35 - 3.208 = 3.142 \text{ CFS}$
- $A = 3.208 / 0.62 (2 \times 32.2 \times (839.00 - 837.75)^{0.5}) = 0.565 \text{ SF}$
- A 4-inch diameter hole has an area of 0.0873 SF.
 Use six (6) 4-inch diameter holes at elevation 837.75.

STORM DRAINAGE NARRATIVE

The proposed Costco site is the existing Phase III of Airport Plaza. The parcel is located west of S. State Street, on the north side of W. Ellsworth Road. It is bounded on the west and north by Airport Boulevard, in Section 8 of Pittsfield Township.

The proposed drainage area encompasses the same areas that now drain into an existing detention basin at the southeast corner of the property. This drainage area includes the off-site areas north of Airport Blvd., including most of Airport Plaza Phase I and Phase I, and much of the area south of State Circle as shown on the overall drainage map.

The proposed detention is designed to meet the current Washtenaw County Water Resources Commission requirements for a 100-year storm event. The existing detention basin is to be reconfigured within the proposed Costco site plan. Additional detention volume will be provided by the use of an underground system of tanks or pipes or appurtenances occupying an area in the proposed parking area on the north side of the building. (For preliminary purposes, 6'-0" diameter pipes are indicated.)

The underground detention and detention basin will act as one unified system to provide the various levels of detention required. The detention system will discharge into the existing storm sewer in Ellsworth Road where the existing detention basin now discharges.

Because the site is composed of sandy/gravel soils with rapid infiltration, storm water detention volume provided will be reduced.

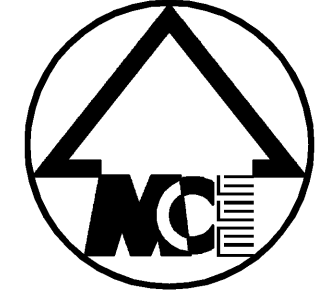
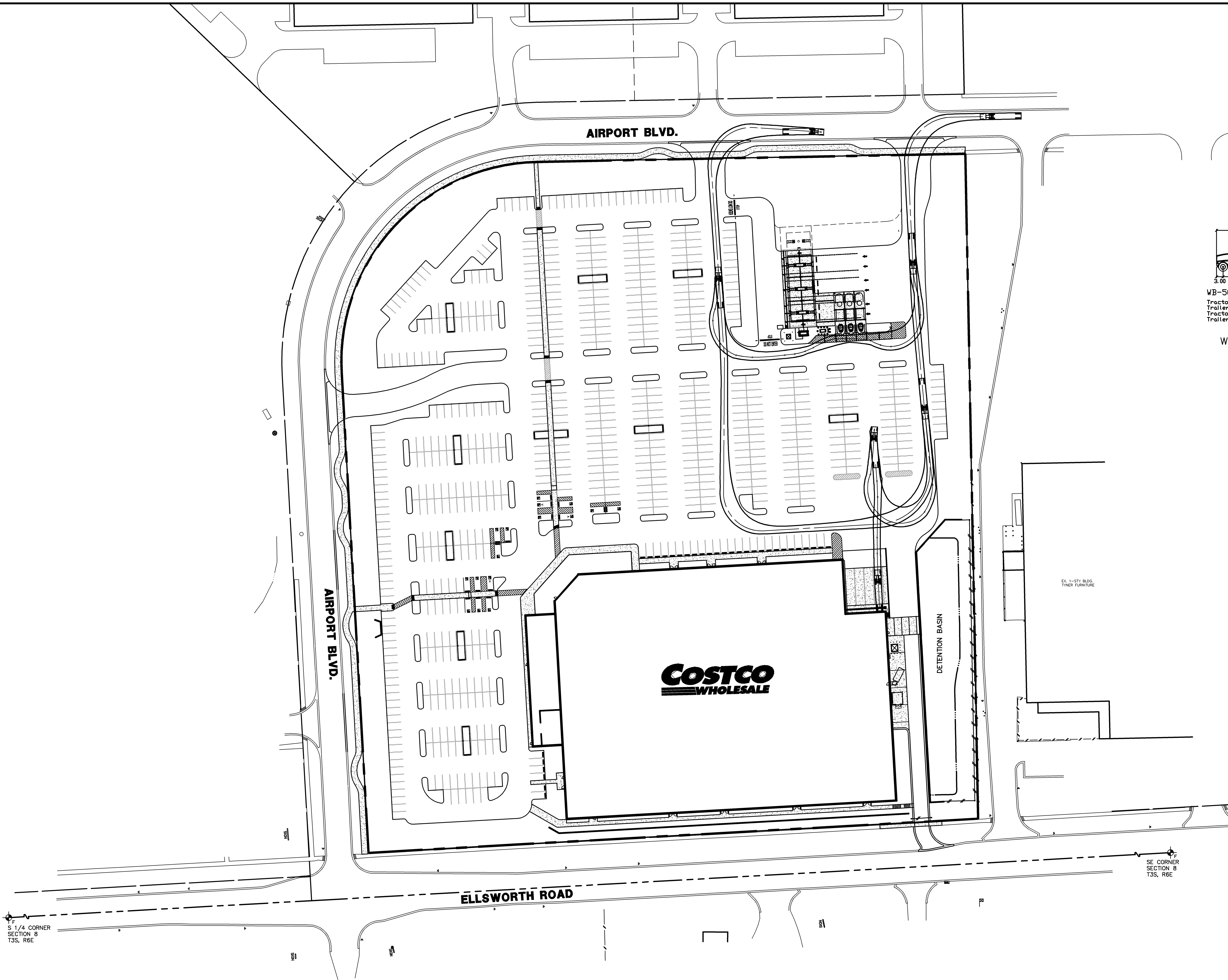
Portions of the perimeter of the site are directed to the adjacent road rights-of-way and are not detained on the site. They will continue to drain off-site as they have historically done.

No negative downstream impacts are anticipated as a result of this development.

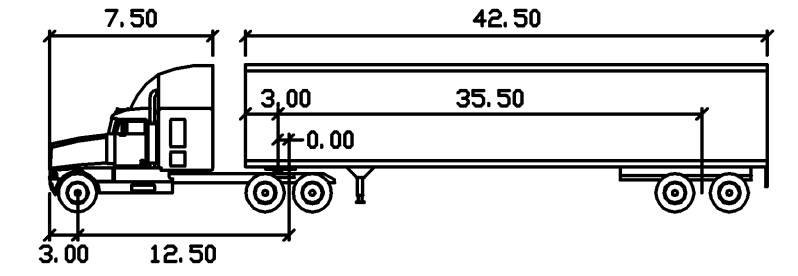
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REVISIONS:	SHEET 18 OF 20
	DATE: 8-19-10
	DESIGNER: WJL
	ENGINEER: JAF
	TECH: DMB
	PRELIMINARY DATE: 8/19/10
	DATE: 8/19/10

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SCALE: 1" = 60'



WB-50 feet
 Tractor Width : 8.00 Lock to Lock Time : 6.00
 Trailer Width : 8.50 Steering Angle : 17.70
 Tractor Track : 8.00 Articulating Angle : 70.00
 Trailer Track : 8.50

WB-50 TRUCK

MIDWESTERN CONSULTING
 Civil, Environmental and
 Transportation Engineers
 Planners, Surveyors
 Landscape Architects



CLIENT
 COSTCO WHOLESALE
 999 LAKE DRIVE
 ISSAQUAH, WA 98027

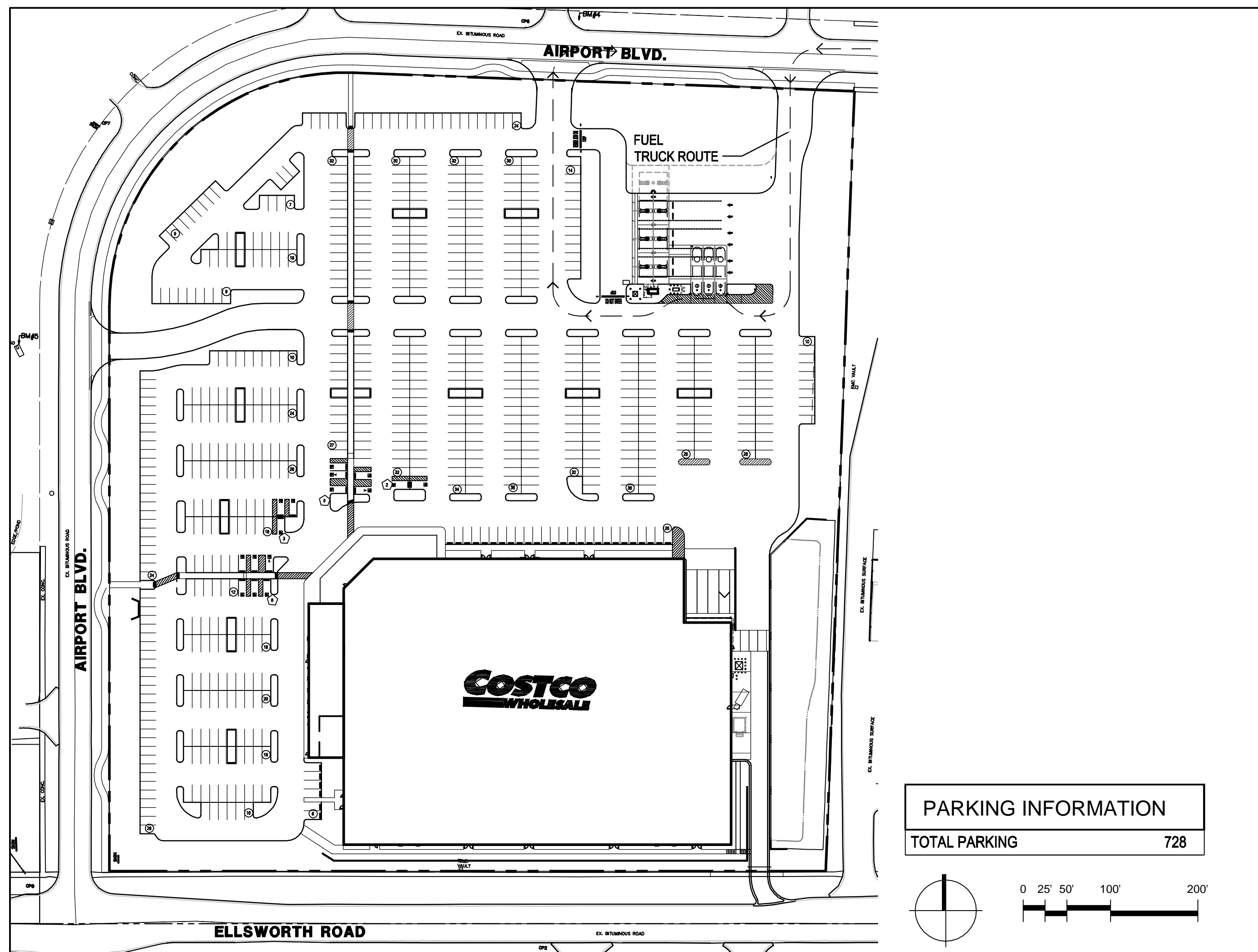
COSTCO
 REZONING AND PRELIMINARY SITE PLAN
 WB-50 TRUCK TURNING PLAN

20

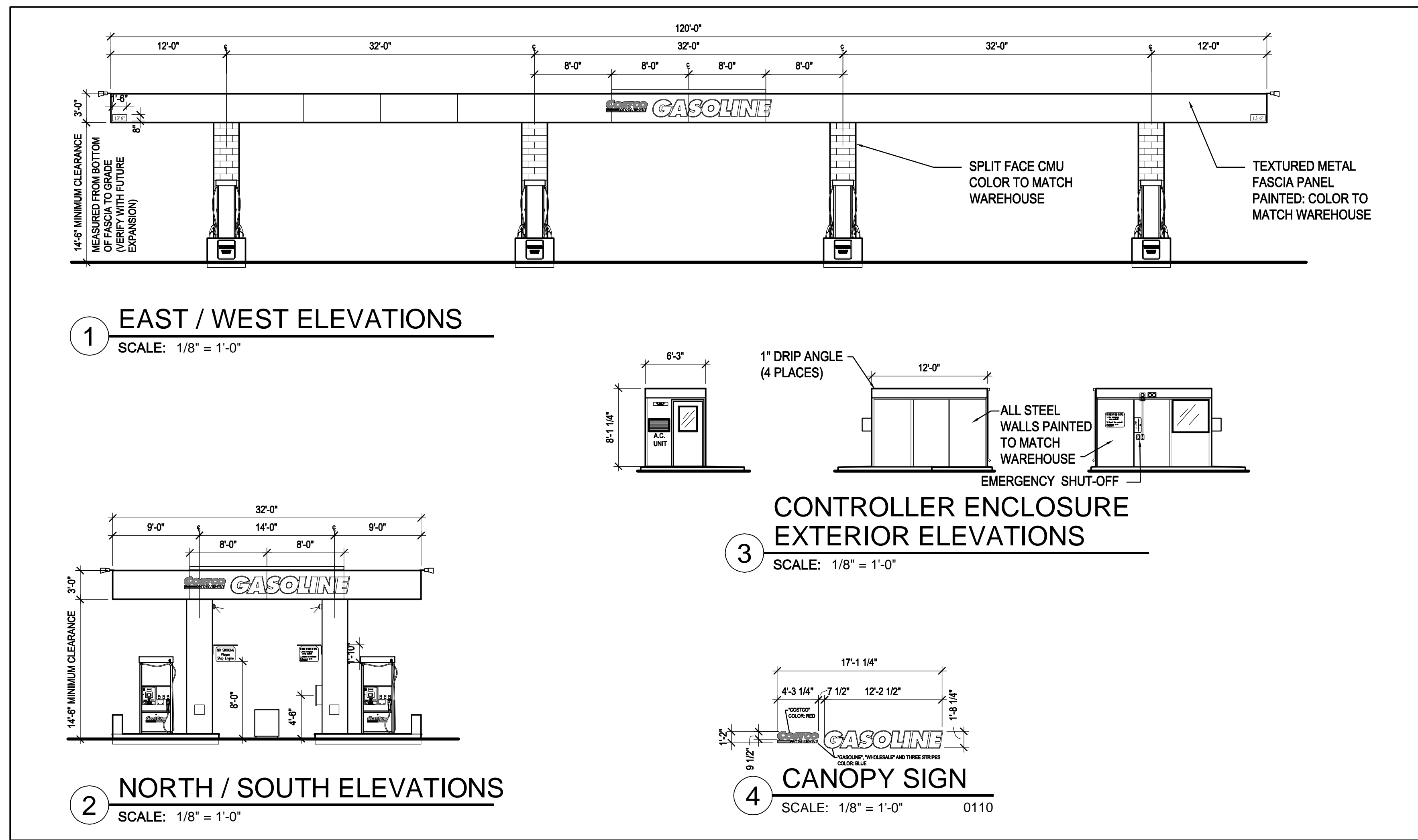
DATE: 8-19-10
 SHEET: 20 OF 20
 CADD: WAJ
 ENG: JAF
 TECH: DMB
 PRELIM: 10046TT1
 PLOT: P01

REV. DATE	REV. DATE

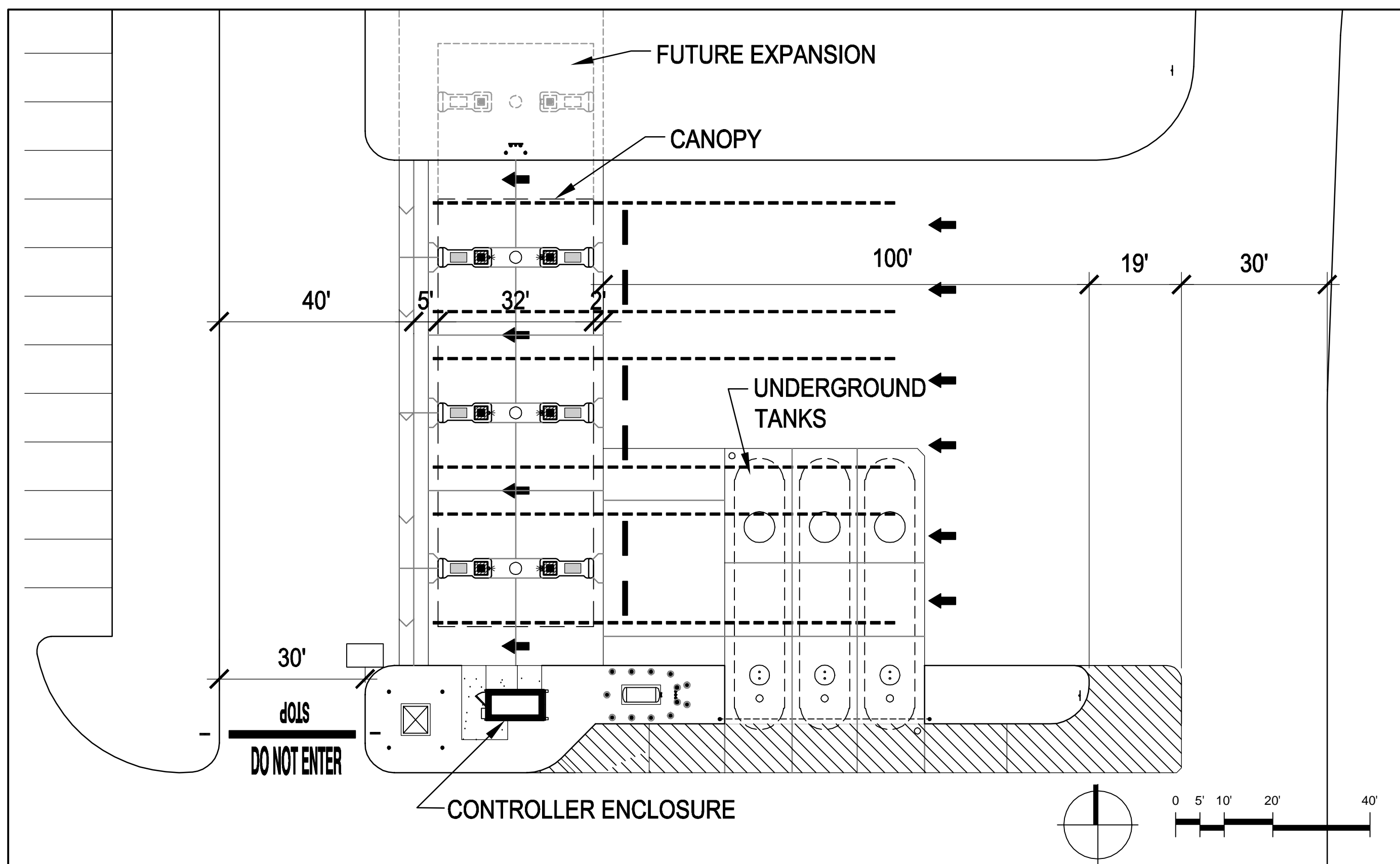
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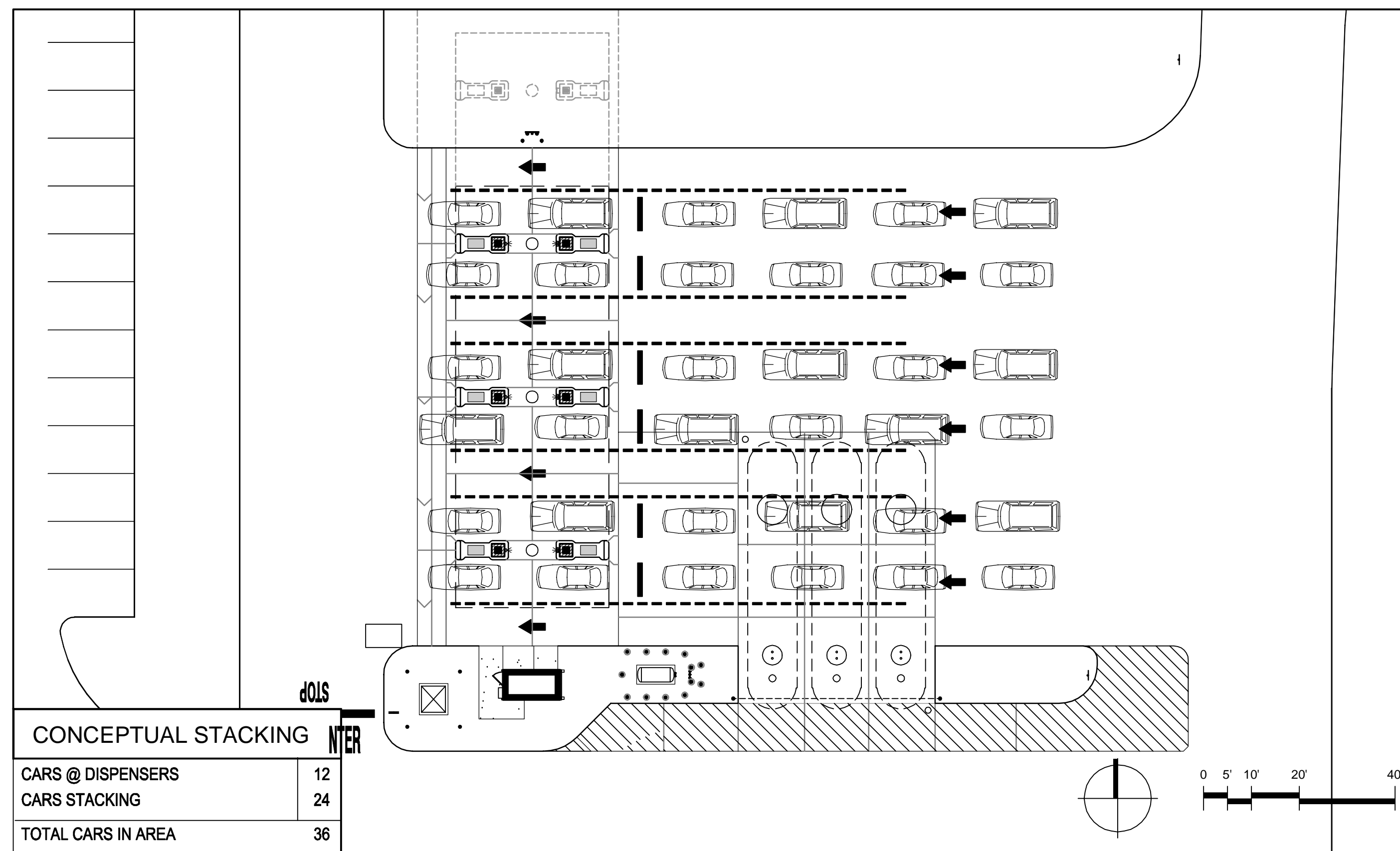
FUEL TRUCK ROUTE



CONCEPT ELEVATIONS



DETAIL SITE PLAN



STACKING PLAN

COSTCO WHOLESALE

GAS STATION DETAIL



PITTSFIELD TOWNSHIP, MI



1110 112TH AVE. NE | SUITE 500
BELLEVUE, WA | 98004
T 425.463.2000 | F 425.463.2002

MulvannyG2.com

09-0295-01
AUGUST 19, 2010
GAS STATION
DETAIL

DD4.1-01