

WATERSHED 750 Sixth Street South

Kirkland WA 98033

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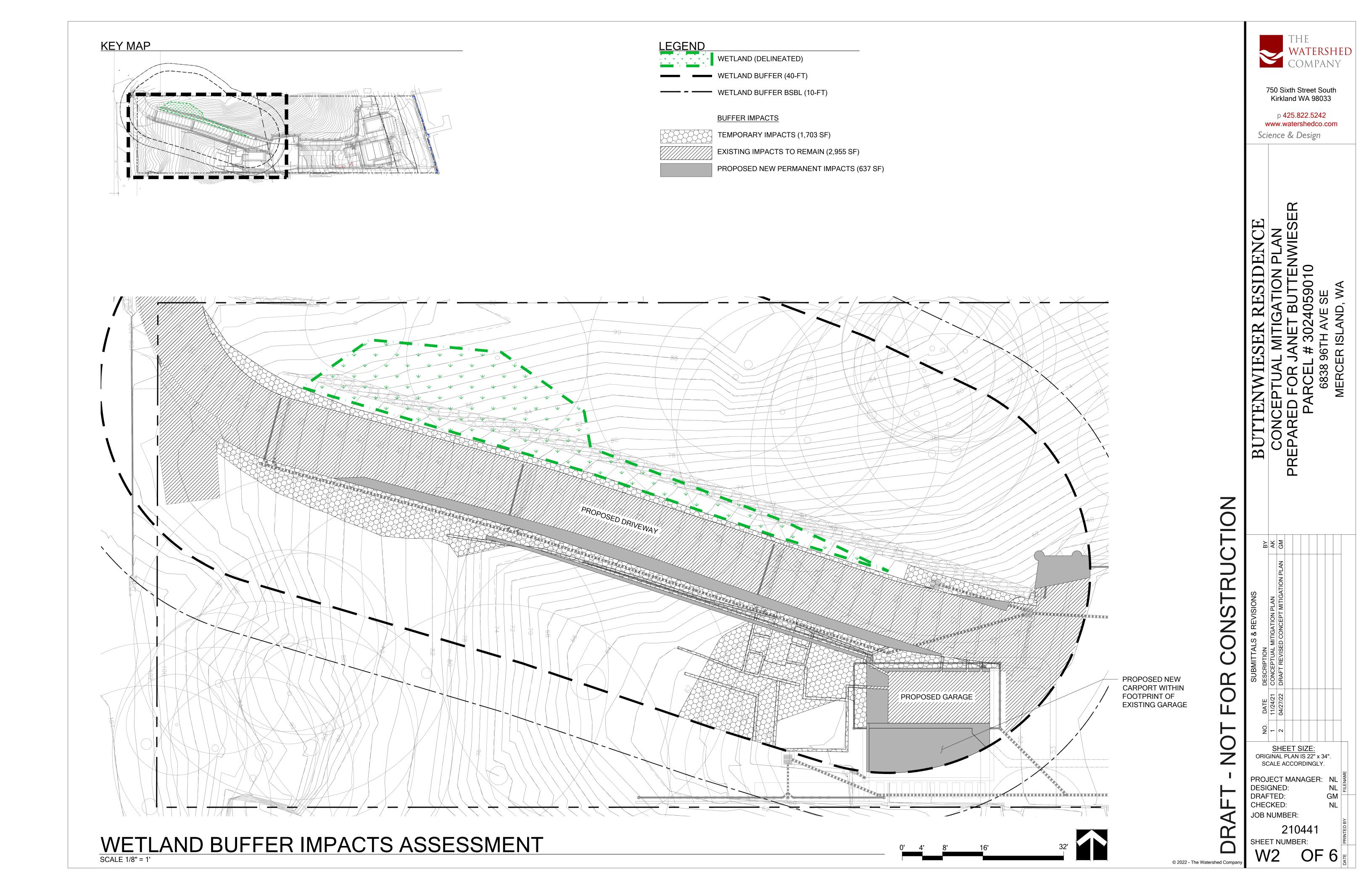
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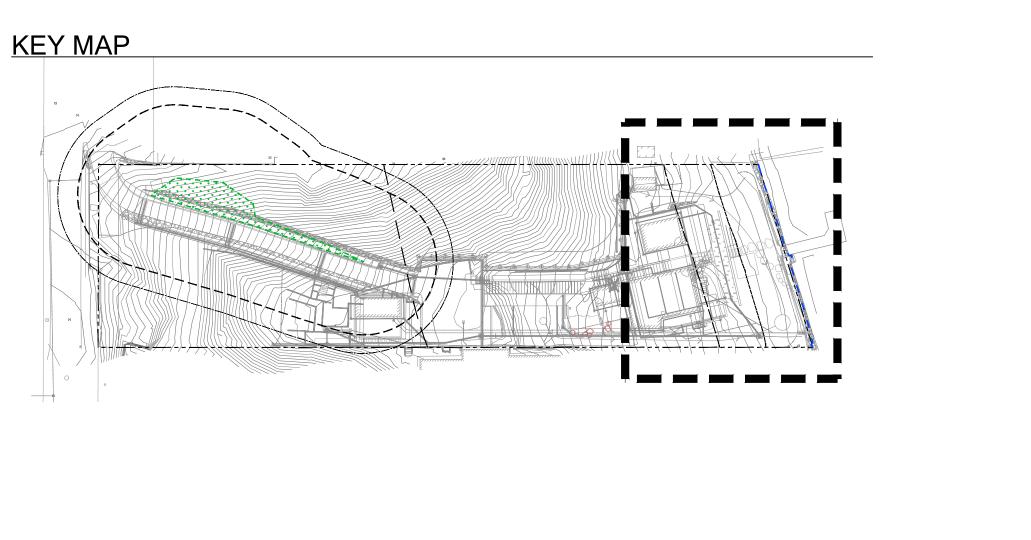
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SHEET SIZE: ORIGINAL PLAN IS 22" x 34". SCALE ACCORDINGLY.

CHECKED:

JOB NUMBER:





**LEGEND LAKE WASHINGTON OHWM (DELINEATED)** 

25-FT SHORELINE BUFFER

50-FT SHORELINE BUFFER

0-25' SHORELINE BUFFER IMPACTS

TEMPORARY IMPACTS (437 SF)

25'-50' SHORELINE BUFFER IMPACTS

PERVIOUS TO IMPERVIOUS (308 SF)

TEMPORARY IMPACTS (1,234 SF)

IMPERVIOUS REMAINING IMPERVIOUS (332 SF)

PERVIOUS TO IMPERVIOUS (206 SF)

NOTES

1. IMPERVIOUS COVERAGE WITHIN 50' SHORELINE BUFFER INCREASED BY 514 SF.

**IMPACTS CALCULATIONS TABLE** 

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	0-25' SHORELINE BUFFER IMPACTS	25-50' SHORELINE BUFFER IMPACTS	
PERVIOUS TO IMPERVIOUS	206 SF	308 SF	
IMPERVIOUS REMAINING IMPERVIOUS	0 SF	332 SF	
TOTAL IMERVIOUS	206 SF	640 SF	
PERCENT IMPERVIOUS	7.9%	24.5%	
MAXIMUM PERCENT IMPERVIOUS ALLOWED PER MICC 19.13.050(C)	10%	30%	

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RESIDENCE

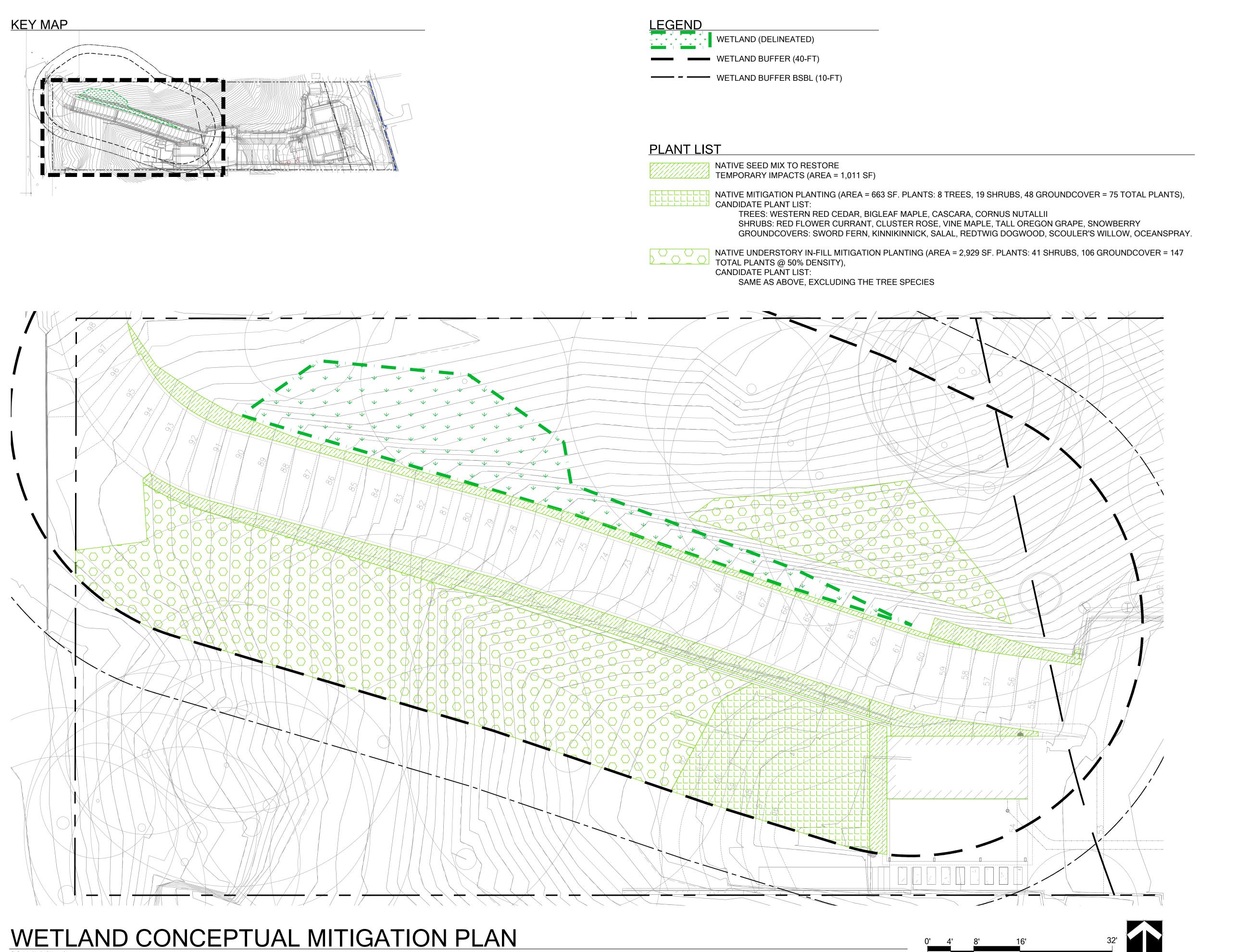
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CHECKED:

JOB NUMBER: OF 6

SHORELINE SETBACK IMPACTS ASSESSMENT



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GATION PLAN

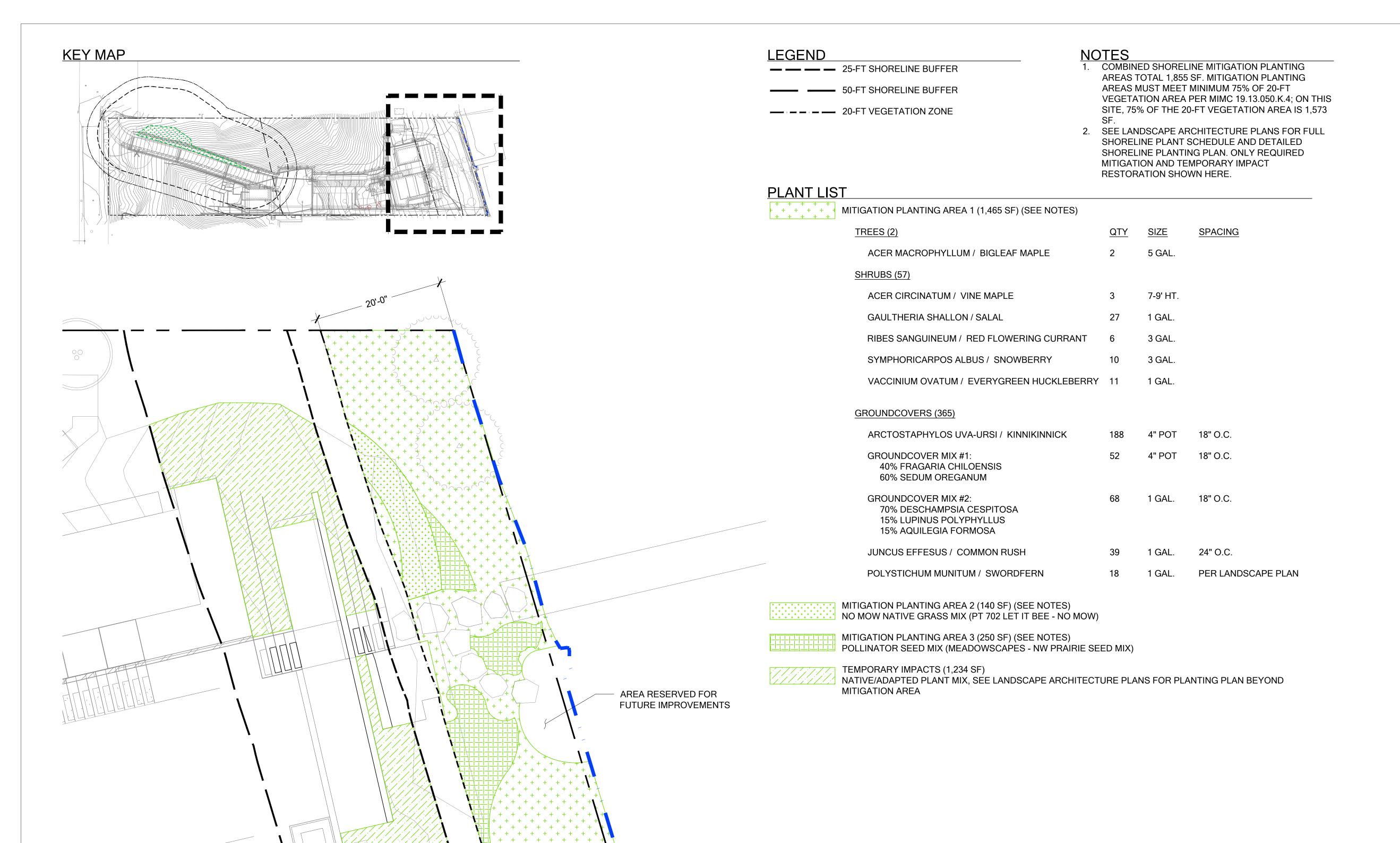
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SHEET SIZE: ORIGINAL PLAN IS 22" x 34". SCALE ACCORDINGLY.

CHECKED:

JOB NUMBER:



BUTTENWIESER RESIDENCE
CONCEPTUAL MITIGATION PLAN
PREPARED FOR JANET BUTTENWIESEF
PARCEL # 3024059010

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SUBMITTALS & REVISIONS

NO. DATE DESCRIPTION

1 11/24/21 CONCEPTUAL MITIGATION PLAN

2 04/27/22 DRAFT REVISED CONCEPT MITIGATION PLAN GM

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34".
SCALE ACCORDINGLY.

PROJECT MANAGER: DESIGNED: DRAFTED: CHECKED:

JOB NUMBER:

210441
SHEET NUMBER:

W5 OF 6

SHORELINE CONCEPTUAL MITIGATION PLAN



## MITIGATION PLAN NOTES

THE PROPOSED SITE REDEVELOPMENT FOR A SINGLE FAMILY RESIDENCE WILL INCREASE IMPERVIOUS SURFACE WITHIN THE 50-FOOT SHORELINE SETBACK BY 514 SQUARE FEET. SITE IMPROVEMENTS COMPLY WITH ALLOWED IMPERVIOUS SURFACE MAXIMUMS IN THE INNER AND OUTER SHORELINE SETBACK. EXISTING LOT COVERAGE IS 7,185 SF AND PROPOSED LOT COVERAGE IS 8,381 SF AS CALCULATED BY MILLER HULL ON THE MERCER ISLAND HOUSE: CASCADE LAND USE SUBMITTAL, 11-5-21. THIS IS A 1,196 SF INCREASE IN LOT COVERAGE. THEREFORE, 75% OF THE VEGETATION AREA (THE INNER 20-FT SETBACK FROM THE LAKESHORE) WILL BE ENHANCED WITH NATIVE VEGETATION AS REQUIRED BY CITY CODE. THE MITIGATION WILL IMPROVE SHORELINE FUNCTIONS RELATIVE TO THE EXISTING LAWN. DRIVEWAY IMPROVEMENTS WILL AVOID DIRECT WETLAND IMPACTS. WETLAND BUFFER IMPACTS ARE CALCULATED AS A CUMULATIVE TOTAL OF EXISTING IMPACT AREAS TO REMAIN PLUS PROPOSED NEW IMPACT AREAS. PERMANENT AND TEMPORARY BUFFER IMPACTS WILL BE RESTORED AT A ONE-TO-ONE RATIO. UPON COMPLETION OF THE PROJECT AND RELATED IMPACT MINIMIZATION AND MITIGATION, THE ON-SITE CRITICAL AREAS AND BUFFER FUNCTIONS WILL BE SUBSTANTIALLY IMPROVED COMPARED TO THE EXISTING CONDITION.

#### MITIGATION SEQUENCING

THE PROJECT HAS BEEN DESIGNED TO AVOID, MINIMIZE AND COMPENSATE FOR TEMPORARY AND PERMANENT IMPACTS TO THE GREATEST EXTENT POSSIBLE GIVEN THE CONSTRAINTS OF THE SITE. THE FOLLOWING DESCRIBES HOW THE MITIGATION SEQUENCING REQUIREMENTS OF THE MICC 19.07.100 HAVE BEEN MET.

### **AVOID**

THE PROJECT TEAM WORKED ON SEVERAL DESIGN ITERATIONS OF THE CONSTRUCTION STAGING AND DRIVEWAY DIMENSIONS TO AVOID ALL DIRECT WETLAND IMPACTS. ADDITIONALLY, IMPERVIOUS SURFACE REMOVALS FROM THE WETLAND BUFFER EXTEND NEW PROPOSED IMPERVIOUS IN THE BUFFER. THEREFORE, NET PERMANENT WETLAND BUFFER IMPACTS ARE ALSO AVOIDED. GIVEN FIRE DEPARTMENT REQUIREMENTS FOR THE DRIVEWAY WIDTH, COMPLETE AVOIDANCE OF NEW BUFFER IMPACTS WERE UNAVOIDABLE.

WITH THE EXCEPTION ONE STEP TO THE SHORELINE, AND A 127 SF PAD, THE PROJECT WILL COMPLETELY AVOID PERMANENT IMPACTS TO THE 0-FOOT TO 25-FOOT SHORELINE AND SHORELINE SETBACK. IMPACTS IN THE 25-FT TO 50-FT SHORELINE SETBACK COULD NOT BE WHOLLY AVOIDED DUE TO SITE TOPOGRAPHY AND LOT CONSTRAINTS. THE PROJECT WILL RESULT IN A NET IMPERVIOUS INCREASE OF 514 SQUARE FEET IN THE 50-FT SHORELINE SETBACK.

#### MINIMIZE

IMPACTS ARE MINIMIZED BY UTILIZING THE EXISTING DEVELOPED FOOTPRINT AS FEASIBLE WITHIN ON-SITE CRITICAL AREA BUFFERS AND SETBACKS. THE DRIVEWAY DESIGN LARGELY OVERLAYS THE EXISTING FOOTPRINT AND SHIFTS THE ALIGNMENT FURTHER AWAY FROM THE ADJACENT WETLAND. SHORELINE REDEVELOPMENT LEAVES THE 0-25-FT SHORELINE SETBACK LARGELY INTACT AND INCORPORATES A BIORETENTION POND TO MANAGE SITE DRAINAGE. OPPORTUNITIES TO REMOVE EXISTING IMPERVIOUS WHERE NO LONGER NEEDED ARE ALSO CAPITALIZED UPON TO OFF-SET NEW IMPACTS. LASTLY, IMPACT AREAS ARE CHARACTERIZED BY LAWN AND WEEDY HERBACEOUS VEGETATION AND RELATIVELY LOW FUNCTIONING.

REDEVELOPMENT IN THE 50-FOOT SHORELINE SETBACK LIMITS IMPERVIOUS SURFACES BELOW THE ALLOWED MAXIMUMS. PROPOSED IMPERVIOUS IN THE INNER 0-25-FOOT BUFFER IS 7.9 PERCENT OF THE AREA, BELOW THE 10 PERCENT ALLOWED BY CODE. REDEVELOPMENT IN THE 25-50-FOOT SETBACK IS 24.5 PERCENT IMPERVIOUS, SHY OF THE 30 PERCENT ALLOWED.

#### **MITIGATE**

MITIGATION FOR THE ADDITION OF IMPERVIOUS SURFACES WITHIN SHORELINE JURISDICTION WILL BE ACCOMPLISHED BY LIMITING IMPERVIOUS SURFACES IN THE 50-FOOT SHORELINE SETBACK TO THE ALLOW MAXIMUMS. SINCE THE TOTAL CHANGE IN LOT COVERAGE EXCEEDS 1,000 SQUARE FEET, THE APPLICANT IS REQUIRED TO PLANT NATIVE VEGETATION IN 75 PERCENT OF THE FIRST 20-FT OF SHORELINE SETBACK. EXISTING LAWN WILL BE REPLACED WITH A MIX OF NATIVE TREES, SHRUBS, AND GROUND COVER, EXCLUDING NONNATIVE GRASSES AND PLANTS ON THE CURRENT KING COUNTY NOXIOUS WEED LIST. IN ACCORDANCE WITH THE MERCER ISLAND SHORELINE MASTER PROGRAM.

BY IMPROVING SHORELINE BUFFER FUNCTIONS CLOSE TO THE OWHM. THE PROJECT WILL ENSURE NO NET LOSS OF FUNCTIONS.

EXISTING AND PROPOSED PROJECT IMPACTS LOCATED WITHIN WETLAND BUFFER WILL BE MITIGATED THROUGH BUFFER ENHANCEMENT AT A ONE-TO-ONE RATIO. TEMPORARY IMPACTS WILL BE RESTORED IN-PLACE TO AN EQUIVALENT OR BETTER CONDITION AT A ONE-TO-ONE RATIO. IN THIS CASE, A NATIVE GRASS SEED MIX WILL BE APPLIED TO TEMPORARY IMPACT AREAS UNLESS OTHERWISE NOTED ON THE PLAN.

## GOALS

- 1. MAINTAIN NO NET LOSS OF SHORELINE SETBACK FUNCTIONS.
- 2. RESTORE DISTURBANCE AREAS TO AN EQUIVALENT OR GREATER CONDITION.
- INCREASE NATIVE PLANT COVER AND DIVERSITY IN THE SHORELINE AND WETLAND BUFFER.
- MAINTAIN LOW INVASIVE PLANT COVER IN THE MITIGATION AREAS.

## PERFORMANCE STANDARDS

THE PERFORMANCE OF THE MITIGATION AREA WILL BE GAUGED USING STANDARDS DESIGNED TO MEASURE ITS SUCCESS. IF PERFORMANCE STANDARDS ARE MET AT THE END OF YEAR 5, THE SITE WILL THEN BE DEEMED SUCCESSFUL. THE PERFORMANCE STANDARDS BELOW ONLY APPLY TO PLANTINGS WITHIN THE MITIGATION AREA.

## SURVIVAL:

- 1. ACHIEVE 100% SURVIVAL OF INSTALLED TREES AND SHRUBS BY THE END OF YEAR 1. THIS STANDARD CAN BE MET THROUGH PLANT ESTABLISHMENT OR THROUGH REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED
- 2. A SURVIVAL STANDARD OF 80% OF NATIVE TREES, SHRUBS, AND GROUNDCOVER PLANTS BY YEAR 5 MAY APPLY IN LIEU OF STANDARD 4, BELOW, IN THE CASE THAT STANDARD 4 IS NOT ACHIEVED.

## NATIVE VEGETATION COVER:

- 3. ACHIEVE 60% COVER OF TREES AND SHRUBS BY YEAR 3. IN AREAS PLANTED WITH GROUNDCOVER PLANTS, ACHIEVE 40% COVER BY THE END OF YEAR 3. NATIVE VOLUNTEER SPECIES MAY COUNT TOWARDS THIS COVER STANDARD.
- 4. ACHIEVE 80% COVER OF NATIVE TREES AND SHRUBS BY YEAR 5. IN AREAS PLANTED WITH GROUNDCOVER PLANTS, ACHIEVE 60% COVER BY THE END OF YEAR 5. NATIVE VOLUNTEER SPECIES MAY COUNT TOWARDS THIS COVER STANDARD.
- 5. IN AREAS PLANTED WITH NATIVE GRASS SEED MIX, ACHIEVE RELATIVELY UNIFORM AND DENSE COVERAGE OF NATIVE GRASSES. RE-SEED AS NECESSARY TO ACHIEVE 80% GROUNDCOVER IN THESE AREAS BY THE END OF YEAR 5. NATIVE GRASS IN THE SHORELINE MITIGATION AREA TO BE MAINTAINED IN A NO-MOW CONDITION.

# INVASIVE VEGETATION COVER:

6. INVASIVE COVER: NO MORE THAN 10% COVER BY INVASIVE WEED SPECIES IN THE BUFFER MITIGATION AREA IN ANY MONITORING YEAR.

## SPECIES DIVERSITY:

7. ESTABLISH AT LEAST ONE SPECIES OF NATIVE TREES, TWO SPECIES OF NATIVE SHRUBS, FOUR GROUNDCOVER PLANT SPECIES WITHIN THE MITIGATION AREA.

#### MAINTENANCE AND MONITORING

## MONITORING PLAN

THIS MONITORING PROGRAM IS DESIGNED TO TRACK THE SUCCESS OF THE MITIGATION SITE OVER TIME AND TO MEASURE THE DEGREE TO WHICH IT IS MEETING THE PERFORMANCE STANDARDS OUTLINED ELSEWHERE IN THIS DOCUMENT.

AN AS-BUILT PLAN WILL BE PREPARED BY THE RESTORATION SPECIALIST PRIOR TO THE BEGINNING OF THE MONITORING PERIOD. THE AS-BUILT PLAN WILL BE A MARK-UP OF THE PLANTING PLANS INCLUDED IN THIS PLAN SET THE AS-BUILT PLAN WILL DOCUMENT ANY DEPARTURES IN PLANT PLACEMENT OR OTHER COMPONENTS FROM THE ACCEPTED MITIGATION PLAN.

MONITORING WILL TAKE PLACE TWICE ANNUALLY FOR FIVE YEARS. DURING EACH YEAR THERE WILL BE A SPRING AND A LATE SUMMER OR FALL VISIT. FIRST-YEAR MONITORING WILL BE PERFORMED IN THE FIRST SPRING SUBSEQUENT TO INSTALLATION. IN YEAR 1, A TOTAL PLANT COUNT WILL BE CONDUCTED. IN YEARS 2 AND 3, REPRESENTATIVE SAMPLES OF THE MITIGATION AREA WILL BE ASSESSED AND PROGRESS TOWARD THE PERFORMANCE STANDARDS MEASURED. VISUAL COVER CLASS ESTIMATES WILL BE USED TO EVALUATE NATIVE COVER. IF 80% COVER BY NATIVE TREES AND SHRUBS IS NOT ACHIEVED IN YEAR 5, A FULL PLANT COUNT WILL BE CONDUCTED TO MEASURE SURVIVAL (SEE PERFORMANCE STANDARD 2.). INVASIVE SPECIES COVER WILL BE VISUALLY ESTIMATED IN EACH YEAR.

THE SPRING MONITORING VISIT WILL RECORD MAINTENANCE ISSUES SUCH AS THE NEED FOR PLANT REPLACEMENT AND INVASIVE SPECIES REMOVAL. FOLLOWING THE SPRING VISIT, THE RESTORATION SPECIALIST WILL NOTIFY THE OWNER AND/OR MAINTENANCE CREWS OF NECESSARY EARLY GROWING SEASON MAINTENANCE NEEDS. THE LATE SUMMER/EARLY FALL MONITORING VISIT WILL INCLUDE PERFORMANCE STANDARD MEASUREMENTS AND A SUBSEQUENT ANNUAL REPORT SUBMITTED TO THE CITY OF MERCER ISLAND. THE REPORT WILL CONTAIN:

- 1. GENERAL SUMMARY OF THE SPRING VISIT.
- FIRST-YEAR COUNTS OF PLANTS BY SPECIES IN THE PLANTED AREA.
- 3. COUNTS OF DEAD PLANTS WHERE MORTALITY IS SIGNIFICANT IN ANY MONITORING YEAR.
- 4. ESTIMATE OF NATIVE SAPLING TREE AND SHRUB COVER USING VISUAL COVER CLASS ESTIMATES.
- 5. ESTIMATE OF INVASIVE WEEDY COVER USING VISUAL COVER CLASS ESTIMATES.
- 6. PHOTOGRAPHIC DOCUMENTATION FROM FIXED REFERENCE POINTS
- 7. RECOMMENDATIONS FOR MAINTENANCE OR REPAIR OF ANY PORTION OF THE MITIGATION AREA.

#### MAINTENANCE PLAN

THE SITE WILL BE MAINTAINED FOR THREE YEARS FOLLOWING COMPLETION OF THE CONSTRUCTION. NOTE: SPECIFICATIONS FOR ITEMS IN BOLD CAN BE FOUND ABOVE UNDER "MATERIAL SPECIFICATIONS AND DEFINITIONS."

- 1. REPLACE EACH PLANT FOUND DEAD IN THE SUMMER MONITORING VISITS DURING FROST-FREE PERIODS ONLY IN THE UPCOMING FALL DORMANT SEASON (OCTOBER 15 TO MARCH 1) FOR THE FIRST MONITORING YEAR. REPLACE PLANTS AS DIRECTED IN MONITORING REPORTS.
- 2. FOLLOW THE RECOMMENDATIONS NOTED IN THE SPRING MONITORING SITE VISIT.
- 3. GENERAL WEEDING FOR ALL PLANTED AREAS:
- 4. AT LEAST TWICE YEARLY, REMOVE ALL COMPETING GRASS AND WEEDS, INCLUDING ROOTS, FROM BENEATH EACH INSTALLED PLANT AND ANY DESIRABLE VOLUNTEER VEGETATION TO A DISTANCE OF 18 INCHES FROM THE MAIN PLANT STEM. WEEDING SHOULD OCCUR AT LEAST TWICE DURING THE SPRING AND SUMMER. FREQUENT WEEDING WILL RESULT IN LOWER MORTALITY AND LOWER PLANT REPLACEMENT COSTS.
- 5. MORE FREQUENT WEEDING MAY BE NECESSARY DEPENDING ON WEED CONDITIONS THAT DEVELOP AFTER PLAN INSTALLATION.
- 6. DO NOT WEED THE AREA NEAR THE PLANT BASES WITH STRING TRIMMER (WEED WHACKER/WEED EATER). NATIVE PLANTS ARE EASILY DAMAGED OR KILLED. AND WEEDS EASILY RECOVER AFTER TRIMMING.
- 7. TO KEEP WEED COVERAGE THROUGHOUT THE PLANTING AREA BELOW THE 10% THRESHOLD.
- 8. APPLY SLOW RELEASE GRANULAR FERTILIZER TO EACH INSTALLED PLANT ANNUALLY IN THE SPRING (BY JUNE 1) OF YEARS 2 THROUGH 5.
- 9. MULCH THE WEEDED AREAS BENEATH EACH PLANT WITH WOOD CHIPS AS NECESSARY TO MAINTAIN A 4-INCH-THICK WOOD CHIP MULCH LAYER AND KEEP DOWN WEEDS.
- 10. THE APPLICANT SHALL ENSURE THAT WATER IS PROVIDED FOR THE ENTIRE PLANTED AREA WITH A MINIMUM OF 2 INCHES OF WATER PROVIDED PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR AT LEAST THE FIRST TWO YEARS FOLLOWING INSTALLATION.

# MATERIAL SPECIFICATIONS AND DEFINITIONS

- 1. RESTORATION SPECIALIST: WATERSHED COMPANY [(425) 822-5242] PERSONNEL, OR OTHER PERSONS QUALIFIED TO EVALUATE ENVIRONMENTAL RESTORATION PROJECTS.
- 2. FERTILIZER: SLOW RELEASE, GRANULAR PHOSPHOROUS-FREE FERTILIZER. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR APPLICATION. KEEP FERTILIZER IN A WEATHER-TIGHT CONTAINER WHILE ON SITE. NOTE THAT FERTILIZER IS TO BE APPLIED ONLY IN YEARS 2, 3, 4 AND 5 AND NOT IN THE FIRST YEAR.
- 3. IRRIGATION SYSTEM: A SYSTEM CAPABLE OF DELIVERING AT LEAST TWO INCHES OF WATER PER WEEK FROM JUNE 1 THROUGH SEPTEMBER 30 FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION.
- 4. WOOD CHIP MULCH: ARBORIST CHIPS (CHIPPED WOODY MATERIAL) APPROXIMATELY 1 TO 3 INCHES IN MAXIMUM DIMENSION (NOT SAWDUST OR COARSE HOG FUEL). THIS MATERIAL IS SOLD AS "ANIMAL FRIENDLY HOG FUEL" AT PACIFIC TOPSOILS [(800) 884-7645]. MULCH SHALL NOT CONTAIN APPRECIABLE QUANTITIES OF GARBAGE, PLASTIC, METAL, SOIL, AND DIMENSIONAL LUMBER OR CONSTRUCTION/DEMOLITION DEBRIS. QUANTITY REQUIRED: ## CUBIC YARDS.

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SHEET SIZE: SCALE ACCORDINGLY

ORIGINAL PLAN IS 22" x 34".

GM

PROJECT MANAGER: NL **DESIGNED: DRAFTED:** CHECKED:

JOB NUMBER:

SHEET NUMBER:

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MITIGATION PLAN NOTES