



WILDSCAPE ENGINEERING SERVICES
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Terrance Grindall
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TO: Terrance Grindall
SUBJECT: Comments Regarding Newark Areas 3 and 4 Specific Plan Project
Draft Environmental Impact Report

Wildscape Engineering Services (WES) was contracted by the Citizen's Committee to Complete the Refuge to review and comment on the adequacy of hydrology and water quality assessments provided in the Draft Environmental Impact Report (DEIR) and related technical reports for the Newark Areas 3 and 4 Specific Plan Project.

The comments are organized under the following five categories, (1) General, (2) Floodplain Modification, (3) Drainage Modification, (4) Wetland Impacts and (5) Climate Change and include the relevant significance criteria.

1. General

There is a general concern regarding the emphasis given to the City of Newark General Plan's (Plan) goals for Area 4 to have a high-quality, low-density use and an 18-hole golf course. The Plan was adopted almost 20 years ago and therefore didn't take into consideration more recent evidence of climate change and sea level rise expectancy and its related impacts to shoreline development and the importance of wetland and salt marsh habitat to water quality and special status species. The 1999 community rejection of the ballot measure to change Area 4's designation to conservation, open space and agriculture was also many years prior to recently developed information regarding climate change and predicted sea level rise.

Since the City of Newark (City) is willing at this time to consider re-designating Area 3 from R&D High Tech Business Park (i.e. Special Industrial) to residential use for the purposes of the proposed project, we ask that the City also consider re-designating Area 4 from low density residential to either open space, conservation or a combination thereof given the potential for substantial environmental and hazardous impacts resulting from developing in such a hydrologically sensitive and flood prone area.



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2. Floodplain Modifications

Significance Criteria

- *Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;*
- *Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.*

It is understood the vast majority of Area 4 is located within the FEMA 100-year floodplain with a general base flood elevation of 8 feet NGVD. The existing levees are not certified and would likely not meet certification requirements since much of their length doesn't provide the required freeboard.

For improved representation it is recommended that the FEMA base flood elevation contours be included on the Flood Zone Map (Figure 3.8-2). Also the DEIR references the 2000 FEMA maps, however a new FEMA map for the area became effective in August 2009 and should be incorporated into the analysis and the 100-year flood boundary shown on the figure should be corrected (i.e. some of the boundary lines on the north and east side of Area 4 are shown as straight when those on the 2009 FEMA maps are curved).

In order to avoid any potential significant flooding impacts, the project proposes to use up to 2.1 million cubic yards of fill in Area 4 to raise the building pad elevations 10 to 14.5 feet in order to reach a minimum elevation of 11.25 feet NGVD to be out of the designated floodplain per City code requirements. This is a substantial alteration of the landscape in order to allow for residential buildings within an existing floodplain. The constructed drainage release points from the built out areas in Area 4 would be at elevations around 10 feet NGVD and there would be a continual reliance upon the pumping mechanism at the Area 4 outlet to Mowry Slough.

It was established in the DEIR that since all housing would be placed on fill above the FEMA base flood elevation that there would be no significant impact due to flooding. However, given the likelihood of the levees to fail in the near future combined with the potential for the raised building pads to settle over time and the reliance on mechanical means to continuously circulate water out of Area 4, a more comprehensive analysis should be undertaken. The supplemental analysis should examine the potential impacts to the integrity of the building pads if inundated and exposed to standing water for periods of time due to overtopped or breached levees, the potential for the proposed storm drain outlets in Area 4 to no longer function as a result of inundation and backwater under flood conditions, and the ability of the pumping mechanism to continuously operate under high water conditions.



3. Drainage Modifications

Significance Criteria

- *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on-or off-site;*
- *Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site:*
- *Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff;*

The proposed project plans to use the existing 42-inch diameter storm drain outfall that currently collects runoff from Sub-Area A within Area 3 and releases it to the Alameda Flood Control and Water Conservation District (ACFC/WCD) Line D. It doesn't appear that adequate analysis has been done to confirm that the existing storm drain and outfall has the remaining capacity and necessary outfall protection to accommodate increased runoff due to the roughly 65% increase in impervious area within Sub-Area A. Further analysis is recommended to determine if the existing pipe and infrastructure could accommodate the increased runoff and peak flows from the proposed development within Area 3 under different high tide and rainfall events and predicted sea level rise with or without additional modifications.

Drainage for Area 4, including Sub-Areas B and C assumes that approximately five storm drain outlets will be used to release water to Sub-Area E and ultimately convey to Mowry Slough via the existing ditches on the inboard side of the levee and interior drainage pump on the southwest end. There is no evidence of investigation as to whether the increased runoff from the proposed development can be adequately conveyed into Area E and ultimately pumped into Mowry Slough. Recommend that an analysis be done considering the increased impervious area's impact on peak runoff and runoff volumes under high groundwater conditions and what that may mean to proposed wetland habitat surrounding the developed areas (i.e. potential to create continuous aquatic conditions in more areas than existing) and whether or not a pump system will continue to work adequately under such an increased demand and alternating high tide conditions.

It is stated in Appendix G the Hydrology and Water Quality Report that development in Area 4 would have a less than significant impact to on-site flooding since increased flows from increased impervious areas are released directly to the Bay and won't affect Bay tides, which are the source of the 100-year flood elevation. But, has consideration or analysis been done over whether increased runoff from the impervious areas in Sub-Areas C and B could overrun the pumping system, particularly during extreme high tide or flood events and potentially back up into the wetland areas



and even into the storm drain outfalls to Sub-Area B and C, in turn resulting in detrimental flooding of the mitigated wetlands and residential areas?

Appendix G also states that an adequate system will be designed to utilize the existing pump outfall in Area 4 with possibly a different size and type of pump and therefore there will be a less-than-significant impact downstream of the outfalls. Increased pump capacity was also analyzed to determine feasibility to retain existing water levels in the ditches. What is not clear is if those analyses were also done in the context of extreme tidal events and whether there may be a significant impact to the areas upstream of the outfall in Area 4 if the pump is tasked with removing runoff during high groundwater and extreme tidal events.

4. Wetland Impacts

Significance Criteria

- *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;*
- *Have a substantial adverse impact on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to: marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrologic interruption, or other means.*

It is understood that an array of wetland types and shallow groundwater conditions occur in Area 3 and predominantly Area 4 due to the low elevations and proximity to the Bay and aquifers.

These existing freshwater and brackish wetlands and adjacent upland transitional zones are important habitat and are currently supported by sheet flow and groundwater seeps. The proposed exorbitant amount of fill, particularly in Sub-Areas B and C in Area 4, redirection of drainage patterns and pumping of groundwater in Sub-Area D in order to facilitate site development and support the golf course is expected to significantly alter the location, type, extent and duration of wetland areas that now exist and support several plant and animal species. Concern is therefore over the ability to “design” adequate mitigation wetland to replace what is lost given the significant number of variables that will be changed and could affect the type and size of wetland lost or modified. For example, given the large increase in impervious surface areas in Sub-Areas B and C there could be substantially more runoff volume that collects within Sub-Area E that does not infiltrate through the low permeability soils and high water table and results in more aquatic habitat or larger areas with standing water for longer periods of time and possibly less salt marsh habitat important to the salt marsh harvest mouse than may be desired. Additionally, there may be a reduced opportunity for water quality BMPs given the inability to rely on infiltration within Sub-Area E and minimal available footprint within the created building pads.



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The statement under MMBIO – 1.1, “*Temporary disturbance to and permanent loss of all wetland and aquatic habitat in Area 4 will be avoided to the maximum extent feasible*” is subjective and vague in regards to how temporary disturbance and permanent loss will be avoided and in what relative proportion to the existing wetland and aquatic habitat.

Mitigation measure MMBIO – 1.2A proposes creating wetlands and aquatic habitat within upland habitat that is currently disked and graded within Area 4 in order to mitigate for existing wetlands and aquatic habitat that are eliminated. It has not been demonstrated that adequate analysis has been done to show that the upland areas have the necessary soil composition, groundwater depths and hydrologic regime to make the pledge that this tactic will provide sustainable high quality wetland and aquatic habitat as required in order to provide adequate mitigation at a ratio of 1:1 and prevent any net loss of habitat functions or values. Additionally mitigation measure MMBIO-1.2 proposes enhancement of existing seasonal wetland habitat that is currently within agricultural production at a ratio of 0.5:1 by terminating farming activities, seeding and possibly grading. The question is will this area be able to truly be restored if pumping operations are continued in a similar fashion as present in order to provide vector and/or flood control?

There are two concerns regarding MMBIO-1.2A, “*A detailed mitigation plan shall be developed by a qualified biologist under contract to each future developer for individual development projects within the Specific Plan areas which result in direct impacts to wetland habitats. This plan will be submitted to and approved by the City of Newark prior to the initiation of grading within wetlands*”. (1) The first concern is in regards to the timing of the mitigation plan, given the significance of potential wetland loss and degradation and indirect impacts to the special status species that depend upon them. Approval of the Specific Plan insinuates that adequate wetland replacement and enhancement can be provided on site, however investigation and proof of that doesn’t occur until after the plan is approved and just before grading is to begin. This is too late in the process and a more developed analysis and mitigation plan should be enacted before the Specific Plan is approved. (2) The second concern is regarding the designation of a qualified biologist, given the critical and underlying factors to support high quality wetland and aquatic habitat and intricate balance in terms of freshwater and brackish water inputs, it is crucial that a qualified hydrologist is also involved in the analysis and development of a mitigation plan and that the plan also include a hydrologic analysis in order to determine that site selection, wetland basin size and depth will result in adequate and sustainable support for the 1:1 replacement qualification and/or targeted plant and animal species required.

In regards to mitigation measure BIO-2.4, how will the measures described to minimize perennial ponding within the existing seasonal wetlands be enforced? For example the measure states that nuisance runoff will be minimized and controlled, proper irrigation using only the amount of water that can be taken up by the plants shall be implemented and water shall be applied at dawn to limit evaporation. How will these mandates, particularly for the private residential housing be enforced to ensure compliance?

Under MM BIO-2.5 the golf course will be designed to drain internally in order to confine nuisance flows to the salt marsh habitat during the dry season. This will also disrupt overland flows from reaching these areas during the wet season and is a change from existing conditions, therefore has analysis been done to determine that cutting off wet season surface flows to these areas won’t damage them over time?



Given the golf course will be irrigated via an existing onsite well has analysis been done as to whether groundwater pumping during the dry season may have a negative effect on the adjacent wetlands and marsh habitats in Area 4?

There appears to be disagreement between what is proposed under mitigation measure MM BIO-2.1 and what is shown in the drainage plan and conceptual grading plan, Figure 2.4-5. Mitigation measure MM BIO 2.1 states that storm water runoff for the proposed residential development and golf course within Area 4 will drain from multiple discharge points to simulate a more natural flow via a more dispersed discharge of collected runoff so that the existing hydrologic condition is not substantially altered. However the drainage plan shows only three storm water outlets for Sub-Area B and two for Sub-Areas C and D. Please provide more explanation and representation on a figure for how flow dispersal will be achieved.

5. Climate Change

Significance Criteria

- *Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.*

Future sea level rise is considered under the cumulative impacts section of the DEIR and the resultant flooding significance due to climate change is determined by whether the project would be adversely impacted by sea level rise of two to three feet. The DEIR acknowledges that future sea level rise would considerably increase flooding along areas of the proposed development currently shown to be in the 100-year floodplain which equates to most of Area 4. Analysis was then conducted, however a less than significant cumulative impact was assigned given there would be sufficient freeboard along the building pads for up to the 100-year event under a 50-year planning horizon. The caveat is also provided that if the “high” sea level rise scenario proves to be true (i.e. would inundate the minimum building pad elevation of 11.25 feet NGVD by 10.2 inches) adaptive strategies to improve flood protection (i.e. levees or floodwalls) may prove necessary in the future. These conclusions are viewed as inadequate for the following reasons:

- a) Given the permanency of residential homes and associated buildings placed on an elevated pad and the high level of risk to life and property the overall approach and 50-year window are inadequate. More analysis is warranted in terms of outlier effects such as drainage impacts, and it would be more appropriate to consider a 100-year planning horizon.
- b) Additional geotechnical analysis may be warranted to determine that the raised building pads could be designed to tolerate periodic flooding without undergoing deterioration.
- c) Given the compressible soils and unknown nature of imported fill, it is not clear whether the proposed 10 to 14 feet of fill compensates for the predicted amount of settlement over time



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- (i.e. 12 inches over the 50 year post construction period). In other words, is enough fill being placed so that the minimum 11.25 feet elevation will remain once settlement has ceased?
- d) The proposed plan is dependent upon raised building pad elevations, however fails to consider impacts to the storm drain outlets proposed to release at 10 feet elevation and the ability of the pump to function properly and adequately drain Area 4 under higher tide levels that would result from predicted sea level rise.
 - e) Given the permanency of the building pads, the “adaptive strategy” component (as recommended by the Army Corps of Engineers and Department of Water Resources) relies heavily on the uncertain option to build taller levees or floodwalls as sea level rise becomes more evident. This puts a significant amount of merit on the ability to construct an adequate levee or floodwall without investigating whether the right structural conditions are there or can be attained. It is recommended that preliminary analysis be done to demonstrate that there is adequate foundation stability, settlement avoidance and interior drainage for a “future” flood levee or wall, so that reliance upon it can be trusted. The analysis should also examine whether such a structure would have direct impacts on the preserved or created wetlands within Area 4 and the fringe wetlands on the outboard side of the existing levee.
 - f) The approach doesn’t necessarily follow the San Francisco Bay Conservation and Development District’s (BCDC) preliminary recommendations for the Bay Plan amendments mentioned in the DEIR that include; discourage new projects that will require new structural shoreline protection during the expected life of the project; determine whether alternative measures that would involve less fill or impacts to the Bay are feasible; require that where shoreline protection is necessary, ecosystem impacts are minimized.
 - g) Given the potential risk to life and property in the long term and the range of sea level rise estimates by several reliable sources, recommend that the DEIR examine the potential flooding impacts due to sea level rise using a bracketed lower and higher sea level rise estimate in order to demonstrate a conservative scenario and a “worst-case” scenario.
 - h) Given the recent education that the state and nation have undergone in regards to flood hazard and catastrophe to developments constructed behind levees and the recent state legislation that is now trying to correct those issues for the Sacramento and San Joaquin River watersheds in California, has it been seriously considered if development within an existing floodplain, particularly Area 4 is appropriate? Currently the state of California is requiring any new development in nearby San Joaquin County to provide a 200-year level of flood protection. Has the proponent analyzed whether more is needed or higher building pad elevations would be required to provide the proposed development with a 200-year level of protection if mandated in the near future?

With the considerable amount of potentially significant hydrologic, wetland and flooding impacts in Area 4 that require multiple intensive and thoughtful mitigation actions to alleviate, we ask that you seriously reconsider the two alternatives, “No Development in Area 4 and Higher Density in Area 3” and “Reduced Housing Alternative” that would remove the residential building footprints and excessive fill required within Area 4.



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We look forward to receiving your responses to further clarify and speak to the proposed project and its potential impacts. If you have any questions regarding our comments, please feel free to contact me at 415-924-6970 or wildscape_eng@sbcglobal.net.

Sincerely,

Carol Beahan, P.E.

Owner, Wildscape Engineering Services